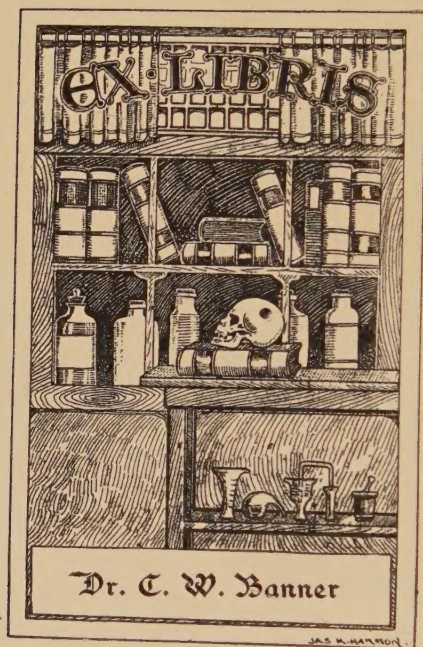
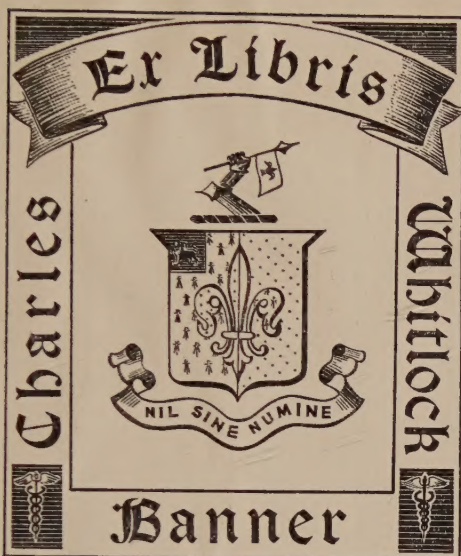
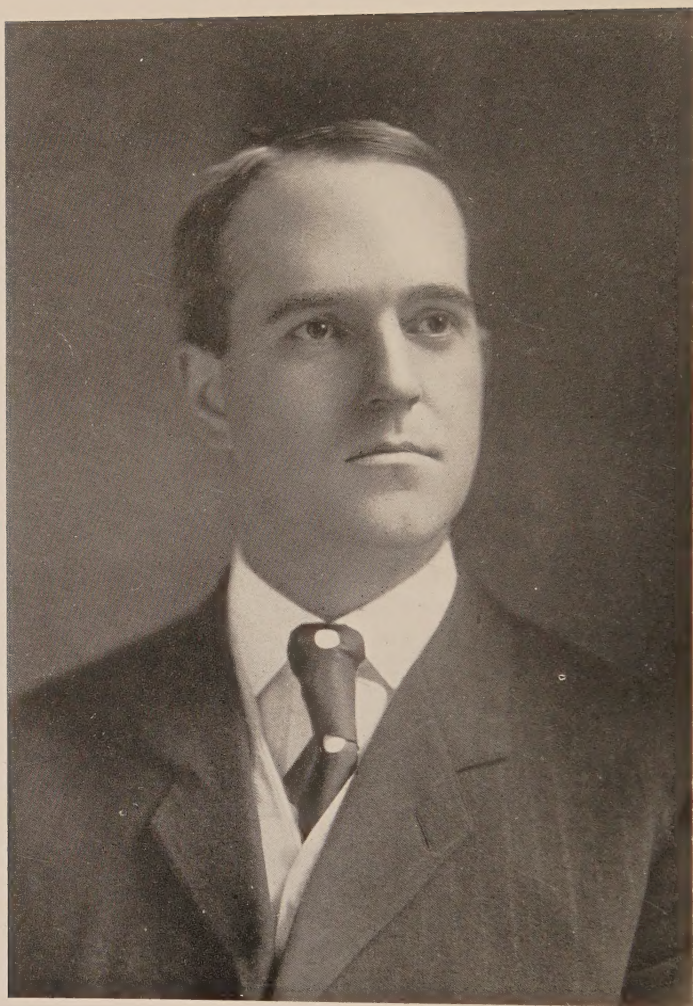


EX LIBRIS
ROBERT L. PHILLIPS, M.D.







Yours sincerely,
W. A. Royster.

TRANSACTIONS

OF THE

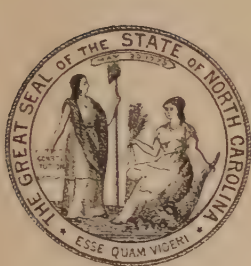
EIGHTH ANNUAL SESSION

OF THE

Tri-State Medical Association

OF THE

CAROLINAS AND VIRGINIA



HELD AT

White Stone, S. C., Feb. 27 and 28, 1906

HUBERT A. ROYSTER, M. D., President,	-	-	-	Raleigh, N. C.
ROLFE E. HUGHES, M. D., Secretary,	-	-	-	Laurens, S. C.

[Edited for the Association by J. Howell Way, M. D., Waynesville, N. C.]

ASHEVILLE, N. C.
PRESS OF HACKNEY & MOALE CO.
1906

PUBLICATION COMMITTEE.

DR. E. C. REGISTER.....Charlotte, N. C.
DR. J. W. JERVEY.....Greenville, S. C.
DR. C. M. EDWARDS.....Richmond, Va.

NOTE.

The Association does not hold itself responsible for the individual views herein expressed.

The next session of the Association will be held in Norfolk, Va., February 27 and 28, 1907.

J. HOWELL WAY,
Secretary-Treasurer.

CONTENTS.

	PAGE
Dr. Hubert A. Royster.....	<i>Frontispiece</i>
Publication Committee.....	2
Contents.....	3
Officers Tri-State Medical Association from organization to date.....	4
Officers and Committees-Elect for session 1907.....	5, 6
Chairman of Sections and Assistant Secretaries for Session 1907.....	7
Opening Invocation.....	<i>Rev. J. S. Watkins</i> 9
Address of Welcome.....	<i>G. D. Wilson, M. D.</i> 10
Address of Welcome.....	<i>Mr. H. E. Ravenel</i> 10
Response to Address of Welcome.....	<i>C. V. Reynolds, M. D.</i> 13
The President's Annual Address.....	<i>H. A. Royster, M. D.</i> 103
Report of Executive Committee.....	55
General Discussions of Papers Read.....	17-102
Minutes of Association.....	9-102
Trigeminal Neuralgia, Surgical Treatment.....	<i>B. M. Ricketts, M. D.</i> 229
Differential Diagnosis of Appendicitis.....	<i>F. L. Potts, M. D.</i> 119
Gall Stones.....	<i>LeGrand Guerry, M. D.</i> 126
Surgical Treatment of Duodenal Ulcers.....	<i>W. D. Haggard, M. D.</i> 133
Pneumonia.....	<i>John N. Upshur, M. D.</i> 150
Iodine in Surgical Work.....	<i>John E. Canaday, M. D.</i> 157
Tumor of Caecum and Colon, Successful Removal of.....	<i>A. B. Knowlton, M. D.</i> 168
A Successful Caesarean Section.....	<i>C. B. Earle, M. D.</i> 173
Educational Factor in Tuberculosis Crusade.....	<i>F. J. Clemenger, M. D.</i> 176
The Modern Mastoid Operation.....	<i>E. W. Carpenter, M. D.</i> 182
Helps to an Early Diagnosis.....	<i>E. T. Dickenson, M. D.</i> 193
Goiter and Its Treatment.....	<i>Stuart McGuire, M. D.</i> 199
Post-Typhoid Infection of Ribs.....	<i>J. Shelton Horsely, M. D.</i> 207
House-to-House Surgery and Tea-Kettle Sterilization.....	<i>Joseph Price, M. D.</i> 213
Liability to Tubercular Infection in Health Resorts.....	<i>J. Howell Way, M. D.</i> 217
Metastatic Abscess from Intestinal Intoxication.....	<i>Stephen Harnsberger, M. D.</i> 255
Extra Uterine Pregnancy, Report of Twelve Cases.....	<i>J. W. Long, M. D.</i> 282
Remarks on Lachrymal Stricture, with Exhibition of New Instrument....	<i>J. W. Jervey, M. D.</i> 292
Fractured Femur with Suggestions as to Treatment by a Double Angular Plaster of Paris Splint.....	<i>J. H. Downey, M. D.</i> 279
Rheumatism, Acute and Chronic Forms.....	<i>J. C. Walton, M. D.</i> 295
Neuroses of Ovarian and Tubal Origin and Their Surgical Treatment.....	<i>J. F. Highsmith, M. D.</i> 308
Importance of Surgical Drainage, With Cases Cited.....	<i>David T. Tayloe, M. D.</i> 332
The Use and Abuse of Mineral Waters.....	<i>Ben K. Hays, M. D.</i> 301
The Management of Puerperal Eclampsia.....	<i>Edward C. Register, M. D.</i> 267
The Possibilities of Appendicitis Have No Limitation.....	<i>John B. Deaver, M. D.</i> 316
Importance of Surgical Drainage, With Cases Cited.....	<i>David F. Taylor, M. D.</i> 332
The Dwarfed and Deformed Mastoid a Sequel to Imperceptible Mastoiditis Complicating Chronic Suppurative Otitis Media....	<i>W. E. Driver, M. D.</i> 336
List of Members.....	357
Constitution and By-Laws.....	361
Index.....	366

ROSTER OF OFFICERS OF THE TRI-STATE MEDICAL ASSOCIATION FROM ORGANIZATION IN 1898 TO DATE

(In response to a call a temporary organization was effected at Virginia Beach, Va., August 31, 1898, with Dr. W. H. H. Cobb President, Dr. H. H. Dodson Treasurer, and Dr. Paulus A. Irving Secretary).

YEAR	PLACE OF MEETING	PRESIDENT	VICE-PRESIDENTS	SECRETARY-TREASURER
1—1899	Charlotte, N. C.	W. H. H. Cobb, of N. C.		{ P. A. Irving, of Va., Sec. H. H. Dodson, N. C., Treas.
2—1900	Charleston, S. C.	W. H. H. Cobb, of N. C.	{ H. B. Weaver, of N. C. C. W. Kollock, of S. C. W. L. Robinson, of Va.	Paulus A. Irving, Va.
3—1901	Richmond, Va.	C. W. Kollock, of S. C.	{ H. A. Royster, of N. C. Manning Simmons, of S. C. J. R. Gildersleeve, of Va.	J. N. Upshur, Va.
4—1902	Asheville, N. C.	J. N. Upshur, of Va.	{ J. W. Long, of N. C. S. C. Baker, of S. C. Hugh M. Taylor, of Va.	H. A. Royster, N. C.
5—1903	Columbia, S. C.	J. A. Burroughs, of N. C.	{ D. A. Stanton, of N. C. A. B. Knowlton, of S. C. Stuart McGuire, of Va.	Rolfe E. Hughes, S. C.
6—1904	Danville, Va.	Davis Furman, of S. C.	{ J. H. Marsh, of N. C. J. M. Flodger, of S. C. Wm. F. Drewry, of Va.	Rolfe E. Hughes, S. C.
7—1905	Greensboro, N. C.	W. L. Robinson, of Va.	{ H. A. Royster, of N. C. G. DeFoix Wilson, of S. C. Southgate Leigh, of Va.	Rolfe E. Hughes, S. C.
8—1906	White Stone, S. C.	H. A. Royster, of N. C.	{ Albert Anderson, of N. C. J. W. Jervay, of S. C. Hugh M. Taylor, of Va.	Rolfe E. Hughes, S. C.

OFFICERS OF THE ASSOCIATION

PRESIDENT

DR. ROLFE E. HUGHES Laurens, S. C.

VICE PRESIDENTS

DR. ISAAC M. TAYLOR Morganton, N. C.

DR. J. A. HAYNE Greenville, S. C.

DR. W. E. DRIVER Norfolk, Va.

SECRETARY-TREASURER

DR. J. HOWELL WAY Waynesville, N. C.

EXECUTIVE COUNCIL

NORTH CAROLINA

DR. ALBERT ANDERSON Wilson, 1 year.

DR. W. H. H. COBB Goldsboro, 2 years.

DR. BEN. K. HAYS Oxford, 3 years.

SOUTH CAROLINA

DR. EDWARD F. PARKER Charleston, 1 year.

DR. W. R. LOWMAN Orangeburg, 2 years.

DR. C. B. EARLE Greenville, 3 years.

VIRGINIA

DR. W. E. ANDERSON Farmville, 1 year.

DR. STUART MCGUIRE Richmond, 2 years.

DR. J. SHELTON HORSLEY Richmond, 3 years.

NECROLOGICAL COMMITTEE

DR. HUBERT A. ROYSTER	Raleigh, N. C.
DR. JNO. N. UPSHUR	Richmond, Va.
DR. C. W. KOLLOCK	South Carolina.

INVITATION COMMITTEE

DR. R. B. EPTING	Greenwood, S. C.
DR. R. C. BRYAN	Richmond, Va.
DR. CHAS. ROBINSON	Greensboro, N. C.

DELINQUENT COMMITTEE

DR. C. M. REES	Charleston, S. C.
DR. J. F. WOODARD	Norfolk, Va.
DR. CARL V. REYNOLDS	Asheville, N. C.

LEADERS OF DEBATE—1907 SESSION

DR. MANNING SIMMONS	Charleston, S. C.
DR. STUART MCGUIRE	Richmond, Va.
DR. J. ERNEST STOKES	Salisbury, N. C.

CHAIRMEN OF SECTIONS

NORTH CAROLINA

DR. THOS. P. CHEESBOROUGH, <i>Medicine</i>	Asheville.
DR. W. W. MCKENZIE, <i>Surgery</i>	Salisbury.
DR. J. W. LONG, <i>Gynæcology</i>	Greensboro.
DR. C. B. MCANALLY, <i>Obstetrics</i>	Madison.
DR. H. H. BRIGGS, <i>Eye, Ear and Throat</i>	Asheville.

SOUTH CAROLINA

DR. T. P. WHALEY, <i>Medicine</i>	Charleston.
DR. C. B. EARLE, <i>Surgery</i>	Greenville.
DR. LEGRAND GUERY, <i>Gynæcology</i>	Columbia.
DR. G. D. WILSON, <i>Obstetrics</i>	Spartanburg.
DR. J. W. JERVEY, <i>Eye, Ear and Throat</i>	Greenville.

VIRGINIA

DR. W. F. DREWRY, <i>Medicine</i>	Petersburg.
DR. LEWIS C. BOSHER, <i>Surgery</i>	Richmond.
DR. J. W. DILLARD, <i>Gynæcology</i>	Lynchburg.
DR. A. H. BUCKMASTER, <i>Obstetrics</i>	Charlottesville.
DR. W. E. DRIVER, <i>Eye, Ear and Throat</i>	Norfolk.

ASSISTANT SECRETARIES

DR. SOUTHGATE LEIGH	Norfolk, Va.
DR. A. E. BAKER	Charleston, S. C.
DR. R. V. BRAWLEY	Salisbury, N. C.

ADDRESSES, DISCUSSIONS, ETC.

OF THE

Tri-State Medical Association

Eighth Annual Session

HELD AT

White Stone Lithia Springs Hotel, White Stone, S. C.

February 27-28th, 1906

Opening session, Tuesday, February 27th, at 12:30 p. m.

The meeting was called to order by Dr. G. DeFoix Wilson, chairman of the Committee of Arrangements.

Divine Invocation by Rev. J. S. Watkins, D. D., as follows:

“Almighty God, the Creator and Preserver and Benefactor of mankind, we lift our hearts to Thee this morning in worship. We adore Thee as the Fountain of Life; the Source of every good and perfect gift. We thank Thee for Thy goodness to us and to all men. We thank Thee for the noble faculties with which Thou hast endowed us, through which we are enabled to administer the wonderful works of nature to the welfare of our own being, so fearfully and wonderfully made. We thank Thee for the blessings with which Thou hast crowned our lives; and now this morning we do invoke Thy blessing upon this assembly. We thank Thee for all the remedies in nature,—that while we live in a world of pain, we live also in a world of remedies. We thank Thee for every agency calculated to relieve human suffering, and for all the agencies which are in

9

use. We do invoke Thy blessing upon these Thy servants. Help them to realize that they are doing God's work; that they are co-workers with Thee. Let Thy blessing rest upon them: In their person, in their family, in their homes, in their profession, and enable them to maintain such a high standard of moral and physical rectitude as to make them noble representatives of their noble profession.

"We invoke Thy blessing, and pray that they may advance the interest of the profession to which they belong.

"Our Father, we lift our hearts to Thee in gratitude and commend ourselves to Thy care. Keep us under Thy continual blessing and guide us all our days, through Jesus Christ our Lord. Amen."

DR. G. DEFOIX WILSON: *Mr. President, Ladies and Gentlemen and Members of the Tri-State Medical Association:* It is customary for some doctor, in the locality in which we meet, to deliver the address of welcome for our State and County, but feeling that I was a bashful young man, and having a brother who was not bashful, I secured the services of my brother to relieve me of this embarrassment, but unfortunately he was called to New Orleans, last night, on professional business. We have, however, secured a lawyer, who will entertain you as I cannot, and it affords me pleasure to introduce to you Mr. H. E. Ravenel, of Spartanburg, S. C.

MR. H. E. RAVENEL: *Mr. President, and Members of the Tri-State Medical Association:* I think that Mr. Stanyarne Wilson and Brother DeFoiX Wilson must look upon me a little bit in the light of a conundrum: "Why is a lawyer like a cat-fish?" "He is like it, because he is half head, and all his head is mouth."

Now, I don't begin to say I can take Dr. Wilson's place, and if I had known it belonged to a doctor to make the opening address I would have insisted upon his doing so. But, ladies and gentlemen, as representing the business interests of Spartanburg and this famous health resort, invited to give you a welcome into our State, it is peculiarly pleasant for me to do so, on account of the three States which you represent.

First comes Old Virginia. We all take off our hats to her, and I suppose there is no city in the South that does not love the soil of Virginia.

Then comes North Carolina—the only State in the Union that we would consent to have on our northern border. What would be lost to poetry and song if there were no North Carolina? No North Carolina mountain coves where mountain dews might trickle. And when it comes to the Governors, what other two governors could contest that time honored amenity which the poets tell us is claimed between the Governors of North Carolina and the Governor of South Carolina?

Last comes little South Carolina; the smallest mustard seed of all, territorily, but gentlemen let me assure you that there is now, as there always has been, a great deal of us, and, although we might consider that Virginia and North Carolina are about in the same class with us, it is a little like the old Scotch woman who was about to die. A friend visited her and said: "You talk so much about heaven, I don't believe you think there is anybody going there but you and the preacher." "Oh no," she said, "I am not so sure about the preacher."

It affords me particular pleasure to speak to the doctors, because it is about the only occasion in my life that I have ever had the pleasure of doing so without having a bill to follow. You stay with us during life, and in-

crease our mental disturbances by your bills, then at the last you help to pass us to our long accounts, and it is long before our estates hear the last of your account.

I desire to beg, gentlemen, that in all of your deliberations, particularly the visitors who come here to distribute gems and germs of thought, in the treating of germ diseases, that if you have acquired the germ of figuring up accounts you see it is thoroughly disinfected before imparting it to our physicians.

Time would fail me to recount the great names of distinguished doctors from our own State, from Dr. David Ramsay, the historian of the Revolution, down to Dr. Gaillard Thomas, who recently died in New York. But, gentlemen, the great are not all dead. If you will believe it, we have in South Carolina to-day men who have successfully doctored our election returns, and even some are bold enough to think that they can doctor the State Dispensary.

I cannot let you leave us, gentlemen, without calling to your attention the business side, and I do this the more readily because there are distinguished instances in our midst of doctors who are at the heads of large enterprises. You are in the banner county of cotton spinning in the whole South. South Carolina has taken the second place in the manufacturing industry, being outranked only by Massachusetts, and Spartanburg County has long held the position of being the greatest cotton spinning place in the South. Sciences are progressing. Perhaps it could not be better illustrated than by an example which is now standing within a few miles of us, out at Glendale. Some fifty years ago Dr. Bivings had a mill there, with 1,200 spindles, no looms, and he had frequently to supplement the water power with mule power. Ten years ago, about at the same

place, 17,500 spindles, with their complement of looms were operated with less difficulty by the water power. So that we live in a wonderful age. Your profession is making wonderful strides, and our industrial advance, is the same way.

But, gentlemen, I also learn, in reading of what you are accomplishing, that more and more you find that parts of the human body can be dispensed with without injury or danger to life. I feel as if I am giving you a little more of my mouth than I should this morning. If it strikes you so, allow me to cite the Scripture saying: "Out of the abundance of the mouth, the heart speaketh."

The State is yours. Spartanburg is yours, and it is yours as long as you will remain masters.

DR. WILSON: Gentlemen, to respond to this toast, I am glad to say that we have secured the services of a distinguished orator of North Carolina, and I have the honor to introduce to you Dr. Carl Reynolds, of Asheville, N. C.

DR. CARL REYNOLDS: *Mr. President, Brother Co-Workers, and the charming Ladies:* I think that the gentleman who has just sat down has, so to speak "mis-spoke" himself. I should think this moment would be most opportune to thank the President for his intended compliment in asking me to respond to this address, but as I sat back there seeing this assembly pass before me in rapid motion, I felt, and feel now, like making a remark like the independent Irishman. An Irishman said if he were worth a million dollars he would go to the Hotel Waldorf-Astoria and register. After registering he would leave a call for six o'clock in the morning. He would then go upstairs and go to bed. His

friend, sitting beside him, said: "Ond whoi, Paht, is ut, if ye wahs wurruth a millium dohlurs, ond wennut to the Waldorruf-Astohrria ond regasturrud, ye wuld lave a caul fohr sax a'clock un tha marnun?" "On bacahs," said Pat, "Whan thot porthur caum un knocked ot my dour loike, ye see, Ih'd tall tha crittur to goo to hell, Oi didunt hav to gat oop ot sax a'clock un tha marnun."

The distinguished speaker who has just taken his seat has said that the doctors were extortioners. It brings to mind a little story; if I can recall it I will tell it:

A wealthy man, who had had in his life some small amount of legal work to attend to, employed two lawyers, and when on his death bed he made a request that these two lawyers come and stand on either side of him. They went, with astonishment and surprise, wondering why such a peculiar request should be asked so at last they asked the old man why it was done. "I want," he said, "to die and ascend like my Lord and Master—with a thief on either side."

But really, gentlemen, I attempt to respond to such a humorous appeal, as is only becoming to this gentleman's oratory and I know I have the hearty co-operation of those present when I say that we accept his hospitality with a great deal of appreciation and while the bar has been well represented, we will drink life to the lees, until we are drunk. Although liquor will have to be dispensed with, we will endeavor to keep up our spirits from the flowing fountain of nature's water—White Stone Lithia.

The Tri-State Society is composed of members from Virginia and from the Carolinas, having as honored visitors and honorary members men from the North, the South, the East, and the West, calling to our meetings those from the country, the medical mines of in-

fluence and advancement—those from the country into the city; from the sea-shore to the inland, and the inland together, making strenuous efforts in our humble and feeble way to find some hidden mystery by which we may find a remedy—a recipe—to erradicate, eliminate, or at least benefit, and not rob, poor, suffering humanity; and to hear an appeal from such a distinguished lawyer and to receive the hospitality that he has extended to us this morning, I am sure that the Society is more than pleased to accept, and we will enter in and make ourselves perfectly at home. Thank you.

DR. WILSON: As Chairman of the Executive Committee, I will now perform a most pleasant duty.

It affords me great pleasure to introduce to you as our President a most accomplished gentleman and distinguished surgeon, from North Carolina, Dr. H. A. Royster.

THE PRESIDENT: I will announce the following conditions, which are specified in the By-Laws: First, that all papers are allowed twenty minutes and the discussions are limited to five minutes. Again, that all motions, resolutions and recommendations shall be referred to the Executive Council, without debate. I purpose to enforce those regulations.

The subject for special discussion is Rheumatism, The leaders appointed are:

Dr. J. P. Monroe, Dr. Frank Lander, Dr. J. H. Allen, Dr. Virginius Harrison.

The Society, of course, will understand that these gentlemen are appointed only to lead the debate, and that then the subject is open for general discussion.

(The four leaders of the debate were absent.)

THE PRESIDENT: I also wish to announce this, which will be the ruling of the Chair, and if there is any objection, an appeal may be taken:

That if a gentleman is not present when his paper is called, he is put at the end of the program for the morning or afternoon session, as the case may be, and if he is not present then, he is put at the foot of the program (except an invited guest, and then the Chair will make provisions by calling them, whenever it seems necessary).

It is said in the present commercial age, no concern is without its means of advertising. I thought that this Association possessed a gavel, but I find that it has none. The Secretary procured one for me from an instrument firm, a trephine, and it serves a useful purpose—the other end of it, I mean.

THE PRESIDENT: The Chair will entertain a motion to postpone this discussion, if it is wished, until the afternoon session, and then he will go on with the regular papers.

The motion is made and seconded that we postpone this discussion until three o'clock this afternoon. Motion carried.

Section on Surgery

Importance of Surgical Drainage, with cases cited—
Dr. David T. Tayloe, Washington, N. C. (*See index for paper.*)

Discussion—DR. J. W. LONG, of Greensboro, N. C.

MR. PRESIDENT: I had not proposed saying anything about this paper. I can only reiterate the very correct principles which have been set forth by Dr. Tayloe. I am sure that his closing sentence contains the gist of the whole matter—"That when we are in doubt, drain."

He makes mention of the removal of the breast as an instance where drainage should be established, but he did not emphasize so much, I think, the reason why we should use drainage in operations of that character.

I think the principal reason why we should drain in operations of removal of the breast and glands, of course, and indeed in any operation where there is an extensive removal of the lymphatic glands—is the fact that the glands are removed. The lymphatic glands are scavengers of the body, and when they are removed there is nothing to carry away the serum.

I can only say that I endorse most heartily Dr. Tayloe's paper.

DR. STUART MCGUIRE, of Richmond, Va.: This paper is of such practical value that I think it ought to be fully discussed. I agree with Dr. Tayloe—the drain is a life-saver. Some one has said, "We drain too often, but when we do drain, we don't drain half enough," and the object of my remarks is to elaborate what has been said with reference of how to drain. The two

great objections to the use of a drain is the danger of hernia, and the obstruction it offers to the process of healing. These dangers especially exist when the drain is introduced through the primary incision. It is always best, in my experience, to introduce the drain through a separate incision, made especially for that purpose. For instance, in appendicitis, after removing the appendix, make a stab incision one inch from the primary incision; introduce the drain through it and close the original opening. By this method danger of hernia and interference with healing will be avoided.

In regard to the character of the drain, the principle is drainage by gravity by the use of a tube, and drainage by capillarity by the use of gauze. Both can be combined most satisfactorily. At present, in most cases, I use a combination of gauze and tube, usually splitting the tube and placing three or four strips of iodoform gauze in its lumen. Another way is to cut the tube spirally, and twist it around a wick of gauze. Still another, is to cover the gauze by gutta percha or rubber tissue. All these methods makes the removal of the drain practically painless.

DR. TAYLOR: I wish to thank the gentlemen for having discussed my paper. I have done some little work, and found that I could not get along without drainage, especially in the field in which I have mentioned in my paper. I thank you.

Paper called for by Dr. C. A. Julian, of Thomasville, N. C., "The Responsibilities of Railway Surgery." Dr. Julian absent.

Dr. W. L. Robinson, of Danville, Va., subject unannounced. Dr. Robinson absent.

Hip Diseases, Dr. Joseph Graham, Durham, N. C.

(Dr. Graham not being in the room, his paper was placed at the end of the program, to be read in the afternoon.)

The President's address, "Modern Types of Doctors," Dr. H. A. Royster, Raleigh N. C. (*See index for address.*)

DR. UPSHUR: Mr. President, I wish to move that this Society's thanks be extended to you for an address which I believe if it can be disseminated widely enough it will be of material benefit to the medical profession. There has never been a day when it was more important that the profession should be free from shams, and you have done it, sir, with a skillful hand.

I move that the thanks of the Society be tendered you.

DR. J. HOWELL WAY: I would like to cordially endorse the suggestion of Dr. Upshur, and to add an amendment thereto. I have, as all of you have, listened with great interest and much delight to this most elegant and eloquent address, an address that, in my humble opinion, would have reflected credit and honor upon the most distinguished doctor in America or elsewhere.

This is an address that affects not only the profession within itself, but the profession in its relation to the outside world, and if in order, I wish to amend Dr. Upshur's motion by adding that the Secretary of this Society be instructed to place this address before the general public, in such proper publications, general newspapers or magazines as he may see fit.

To save the President from embarrassment, Dr. Upshur having accepted my amendment, I place the question before you gentlemen. Those favoring the amendment, and the original motion as amended, will signify

it by saying aye. Those opposed, no. The motion carried. The Secretary will make the proper record and make the proper distribution abroad of this splendid address.

DR. ROYSTER: I thank my friends for their kindness, and this matter, of course, will be referred to the Secretary for action.

Motion was made and carried that the Association adjourn and meet again at three o'clock.

TUESDAY AFTERNOON SESSION.

“Surgical Treatment of Tri-Facial Neuralgia,” Dr. B. Merrill Rickets, Cincinnati, Ohio. (*See index for paper.*)

Discussion—DR. J. SHELTON HORSLEY, Richmond, Va.

Mr. President, and Gentlemen: I was very much interested in Dr. Rickets' paper. As a general thing, the doctor goes into a thing very thoroughly and this is no exception. As for the operation itself, I have done some of that work and consequently feel particularly interested in it.

There are two or three points that I would like to make some remarks upon: First of all as to regeneration. We all know that nervous tissue is the most complex of all tissues and it follows the rule that the more complex a tissue is, the more difficult it is to repair. The repair of nervous tissue is less understood than the repair of any other. The more complex the nervous tissue is, as for instance, the ganglion cells, the more difficult it is to repair. A good many years ago it was thought that the spinal cord would not repair after an injury. We know that in some instances it will repair, to some degree, though not entirely. It seems to me that with the uncertain idea of the regeneration of ner-

vous tissue, the unknown pathology (which the President so justly lays stress upon) of our method of treatment cannot be entirely exact. As a matter of fact, we know that all nerves tend to regenerate, and that those about the face will regenerate more perfectly than those of the limbs or trunk. Dr. Mayo, of Rochester, mentioned a case at Louisville, last December, in which he had resected the second branch of the fifth nerve and plugged the infra-orbital foramen with silver. The silver stayed a long time, but after a number of years dislodged and then union took place. If that can occur after a number of years, it would seem that while resection might be permanent, it would not be permanent in every instance.

I do not believe for an instant that all tri-facial neuralgias should be subjected to a Gasserian ganglion operation, but I do believe that we ought to caution the patient that a peripheral operation may not be permanent. I have tried the osmic acid method in one case only, in which I first resected and afterwards injected osmic acid. There was immediate temporary relief, but the reaction was not satisfactory and pain resumed. I think it was due to imperfect technique, and some of the branches must have escaped, but in the second operation I think I got all of them. Relief from pain was partial but has not been complete. As for the area of anesthesia, it is not very accurately given in most anatomies. In the first Gasserian ganglion operation I did, I was somewhat surprised and chagrined to find that the patient had distinctly normal nervous supply over the lower border of the jaw. In looking over the matter I later found that the inferior maxillary branch supplies a very small area of sensation over the lower jaw. It is probably an inch from the angle of the jaw, and never reaches as low as its lower border. It

seems to me that anesthesia would diminish after the operations, because along the border of the anesthetic area the nerve fibers of healthy nerves will tend to take up the function of the impaired nerve.

As to the external incision, I have tried two methods. First of all, I do not think anyone can do any of these operations unless he has tried it on cadavers, and you have to try a number of times to get the proper bearings, you have to feel the structures and landmarks, and even when you know them, the hemorrhage will make the operation very difficult. In the first case I employed practically the method of Dr. Cushing. I did not preserve the subcutaneous fat, and I took away too much of the bone at the base of the skull. The result was, while the operation was satisfactory as far as relief from pain and removal of the ganglion in toto were concerned, yet, on account of these things just mentioned, there has been much more deformitory than should be.

I have also tried the Abbe method, making straight incision. You can cut the second and third branches and interpose some rubber tissue through this incision, but it would be a little more difficult to exercise the ganglion, because hemorrhage would be more difficult to control, and because of the fact that the field would be very much more inaccessible. The most satisfactory incision has been Cushing's. I use the chisel with wooden mallet entirely, lifting the dura with the finger until the nerves and ganglion are exposed, stopping, as occasion may require, for checking hemorrhage. It is best not to do these things too fast. When you rush through, you accomplish a great deal of injury, and lose blood needlessly. It requires different methods from abdominal operation where speed is essential.

After elevating the brain and stopping the hemorrhage, by pressing directly upon the bleeding points,

and not handling the brain any more than you can possibly help, the second division of the tri-facial first comes into view, then the third and the ganglion.

Sometimes the bony landmarks are not always distinct. I found one case in which a sharp bony spine a half inch high stuck up from the petrous portions of the temporal and had to be removed with a rougeur. Exposing the second division and retracing the brain just at this point, you will come to the crotch between the second and the third; it is plainly visible. These two divisions must be loosened first, then ganglion above and afterwards below. Cut the second and the third divisions at their foramina and grasping the ganglion at the crotch, twist it out, so tearing it from the first division.

Those cases require very little drainage, sometimes none at all, as letting the grain fall back in its position will stop almost any hemorrhage.

Dr. Rickets closes dicussion.

DR. RICKETS: I am very glad to hear Dr. Horsley state that he did not recommend an inter-cranial operation until all other methods had been exhausted, and first of all theremedies should be applied, chief of which is castor oil—a remedy that I wrote about probably twelve years ago, and suggested by Dr. Osler. Since that time I have used it in one or two cases, with excellent results. We should first use castor oil. That once used, then we should come down to the neurotomy, neurectomy, complete removal, and at the cranial exits all these things should be done in the order suggested in this paper. That all done, and the patient not relieved, and there is not mortality it is time then, if necessary, to do the inter-cranial operation. I have talked to surgeons who have done this

work for fifteen years and they say they will do more neurectomies in the future, and I am quite sure that I have better support than ever as to inter-cranial operations. I never believed in them and, as I say now, a mortality of 25 or 30 per cent. for a condition that does not produce death, is very unjustifiable.

“The Country Physician in Surgery,” Dr. J. F. Williams, Roebuck, S. C. (Absent.)

“The Differential Diagnosis of Appendicitis, with the Report of a Case of Mistaken Diagnosis,” Dr. F. L. Potts, Spartanburg, S. C. (*See index for paper.*)

Discussion—DR. FLIPPIN: In regard to the diagnosis of appendicitis, I have had some little experience with appendicitis and almost all of the cases that I have had anything to do with have had a clear case of symptoms prior to this attack. You will invariably find that all of these patients have had colicky pains; the probability is that they did not last but a few hours and were of short duration, but they would complain of soreness afterwards in the right illiac region, for some time, probably lasting three or four days. They would have three or four of these attacks prior to the attack of appendicitis. Very often you have the upper gastric pain.

In the diagnosis of appendicitis, regardless of fever, there is always the peculiarity of the fetid breath, that I believe almost every surgeon will notice in a case of appendicitis. You have it also in other abdominal cases besides appendicitis, but it is always so in appendicitis: there is a peculiar odor about the breath, with constipation, with probably pain referred to the hyper-gastric region, with always pain over the base of the appendix. I don't care where the pain may be referred to, there

will always be pain over the base of the appendix—out over McBurney's point. The pain may probably be in the ovary, as a case I had was similar to that, but I made the diagnosis from pain over the base of the appendix. I operated and found the base of the appendix attached to the right ovary. It might be that losing it-self in the broad ligament would make pain in the right ovary, but you will always find pain over the base of the appendix, in appendicitis.

Discussion—DR. HUGH M. TAYLOR, Richmond: Mr. Chairman, I plead guilty to the charge of having operated many times for appendicitis unnecessarily; many times when at least there were no microscopic evidences of appendicitis, and in some instances the future course of the case made it clear that some other marked condition was responsible for the symptoms. Appendicitis is capable of giving a great many surgical surprises. I have never operated too early; I have operated many times too late. I do not dread to meet in the world beyond those upon whom I have operated unnecessarily, but I do dread to meet those to whom disaster has come through delayed interference for which I am responsible. I wish it were true that all cases present classic symptoms and are very easy to diagnose. All of us have seen abnormal pulse and temperature, no pain or rigidity, a placid expression coexisting with a gangrinous appendix or an abscess. Fortunately a majority of the cases are classic in the symptoms they evince, but a sufficient number have many missing links in the chain of evidence. I have seen not a few patients walking about with appendiceal abscess; have seen the pain focussed in the chest, have opened the abdomen to find tuberculosis or typhoid fever, and more than once have mistaken the symptoms of acute cholecystitis for those

of appendicitis. Mr. Treves reports the case of a child with bloody stools and tenesmus. He opened the abdomen expecting to find invagination and only found a gangrenous appendix. I have more than once opened the abdomen for supposed appendicitis and found auto infection from the intestines. Gastric and duodenal perforations, notably the latter, acute strangulation ilius, ruptured ectopic gestation, volvulus, mesenteric thrombosis and acute pancreatitis are other conditions which are not infrequently difficult to differentiate from acute appendicitis.

Very recently I was called to an 11th hour case of acute wide-spread intraperitoneal infection. Upon general principles we would have indicted the appendix, but the history of the case brought so clearly in view the hunger pain, so characteristic of duodenal ulcer, that I ventured the diagnosis of perforating duodenal ulcer, and a section disclosed a great rent in a chronic duodenal ulcer.

The diagnosis of appendicitis may or may not be easy.

DR. J. C. WALTON, Chase, City, Va.: I recall a brother doctor operated on a case of appendicitis fifteen miles distant, and he was so certain of the diagnosis that he sterilized the instruments, and the patient had pain around the umbilicus, and we decided it was due to lumbricoids (?) and we gave some calomel, and we didn't operate, and the patient got well—and we didn't get any fee, either!

DR. A. B. KNOWLTON, Columbia, S. C.: I promised myself not to say anything on appendicitis today, but I wish to congratulate the Society, and Dr. Potts also.

I cannot but think that there are times when we will

derive as much information from our mistakes as from our brilliant operations and correct diagnosis.

DR. SOUTHGATE LEIGH, Norfolk, Va.: I think there are many cases when, after opening the abdomen, we find the appendix only slightly affected. I have seen operators and spectators express surprise at the apparently healthy condition of the appendix. I have seen a number of cases in the last few years in which the patients have had distinct attacks of what we thought to be appendicitis, and on opening I was surprised to find apparently so little wrong with the appendix.

What I want to say in this connection is, that I believe we frequently have attacks of pain from distention of the bowel; pain which is due to some slight abnormality of the appendix. I have seen bands which if the appendix were put on stretch, would cause occlusion of its cavity. Some band in the neighborhood that would prevent the appendix being free when the bowel to which it was attached moved its position. I had a case recently operated on by a friend of mine in Richmond. The patient had one ovary and a part of the other removed. She was a neurasthenic and continued to suffer violently with painful attacks. She thought the trouble was due to the remains of the ovary which was left in—it happened to be the right ovary. I tried to relieve her in various ways, and finally performed an operation and found the ovary was not diseased at all. I did not expect any trouble with the appendix, but found that it was very long and wound around back of the colon, the tip being in the region of the right kidney. The woman stated that when she had attacks of pain, she usually had some indigestion. She complained that the attack came on near the kidney and went on down toward the pelvis.

Some years ago I operated on a woman, a patient of mine, from Newport News. She had been in Chicago and was taken with apparently a typical case of appendicitis. She was seen by a very eminent surgeon, who told her that it was necessary to operate on her; that she had appendicitis without a doubt. She came immediately home and I operated on her and found an abscess of the right ovary, which was adherent to the abdominal wall. That illustrates what we often lose sight of, and that is, that we ought not to make such decided diagnoses; we ought to give ourselves some loop-hole; we ought to say "we think" it is so and so—but there is always some doubt.

Another case came to me with a distinct history of appendicitis—two or three attacks of appendicitis, and the statement from both doctor and patient was that the difficulty was at McBurney's point. I operated, finding the appendix under the liver. It was a peculiar changing around in the position of the intestines.

Still another case had been operated on in Baltimore. He said the surgeon found very little the matter with the appendix. He came to me two or three years afterwards and thought he had appendicitis, notwithstanding the appendix had been removed. I operated and found enlarged mesenteric glands. The pain has been almost entirely relieved.

DR. EDWARD MCGUIRE, Richmond, Va.: Mr. President, I want to congratulate the gentleman who has just read this paper.

I want to report a little experience in Philadelphia, some years ago, at the meeting of the American Medical Association. I was invited to be present at a hospital, at an operation. The diagnosis for appendicitis had been made by three of the best surgeons in America.

and they all agreed that it was a case of appendicitis. The operation revealed a case of tubal gestation.

Of course the majority of cases are typical. As Dr. Taylor has said, 'I have seen the pain located in the left breast, in appendicitis. I have seen it indicative of pleurisy, with no tenderness over the site of the appendix. I have seen a boy skating at nine o'clock, and be operated on at eleven o'clock, and an appendiceal abscess was found, the patient having had practically no symptoms.

So again in regard to the differential diagnosis between that and tubal trouble—it is exceedingly difficult. In an apparently short time I have seen three cases of pelvic abscess from infection of the appendix. I have removed the appendix, and the fallopian tube was infected from the appendix, and there was no way in which you could make the diagnosis.

I think it is very important to make a thorough vaginal examination. Where the tube has been infected and a mild salpingitis has ensued, it is impossible to make the diagnosis all the time, but there are differential points. Of course when the surgeon has come in and the pelvic disease has extended, it is almost impossible to make this diagnosis.

DR. J. S. IRVIN, Danville, Va.: The question of appendicitis is such an important one, and it seems that there is a question as to the importance of operating—as to when to operate, and the question of having made a diagnosis. From what the different men have said, it shows very plainly how important it is to operate on these cases before they go to a point where there is any case as to treatment. Of course if we can get one of these cases in forty-eight hours, it is very little trouble and a very simple operation, and why should we wait to

make out a diagnosis—worry for days and days to find out whether it is a case? We ought not to be afraid to open these cases, and if we have operated when we should not, it isn't such a bad thing, and if we will operate early in the attack, we will save lives, where we will lose them by being afraid.

I have never seen any reason, although you may be called in to see a case that has been going on for three or four days—not to operate. It may turn out as well, but as a rule, if you will stick to it, when you have made a diagnosis, or if you think it is appendicitis, operate immediately, without waiting for anything. Of course there are some complications, but as a rule, operate as soon as you think you have a case of appendicitis.

Now, diagnosing appendicitis in women, in my opinion, is the hardest of all, because there are so many ovarian troubles, but I think it is better to take the risk, make your incision and find out if it is not appendicitis, and if you have some trouble not requiring an operation, you haven't done much damage. There are so many cases of appendiceal pain, which, by some surgeons, is called a, but that appendix does give trouble, and with an operation you take out the appendix and relieve the patient; you cure the patient; you have done an operation that saves your patient.

In a great many of these cases I have noticed that you go to a case and a general practitioner will tell you, "I saw this case last night and he had a tumor in his side." You make examination and find none. We often think we have an abscess and it is not.

So far as McBurney's point is concerned, I hear a great deal of talk about it. For my part, I have never seen anything in McBurney's point. The pain and tenderness of appendicitis—I must say that I have not seen McBurney's point demonstrated in appendicitis any of-

tener than other places, probably, in the mid-line, the appendix going back to the pelvis, back under the liver. It isn't a matter of any one special rule. There is no special rule to go by. It is just appendicitis, or it is not. Probably you will have a slow pulse, some fever, or none, but there is no rule to go by; but in my opinion it is the right thing to operate, whether it is needed or not.

DR. J. N. UPSHUR, Richmond, Va.: I begin to get a little shaky, where the surgeons are, but sometimes I feel constrained to "speak out in meeting." There is one condition which I have seen, where the symptoms of appendicitis seem to be thoroughly marked. The distinctive points of one, I remember, about a year ago, of a boy sixteen or seventeen years old, who had what to me are the most cardinal points in the diagnosis of appendicitis: Rigidity of the right rectus muscle, with pain, and possibly nausea—he had both. And if back of that there is a history of constipation, it makes it almost conclusive it is appendicitis. This boy was seized suddenly. He did not respond to any remedy given him for the relief of the condition. He had taken salines, without result; he had had several days of constipation, and at night I gave him a dose of calomel and henbane. I called Dr. Taylor to see him and he agreed with me that it was appendicitis, but as he was somewhat better, we determined to wait a few hours.

I will not take up the time, except to say that next morning, when he had a full, free action from the calomel and henbane, all the symptoms of appendicitis disappeared. These symptoms were due to fecal impaction in the colon. It has been a year ago, and he has never had any indication of symptoms since, because he has had a regulation of his bowels and no constipation.

Last August I was sent for to go to West Virginia to

see a lady, and was told she had appendicitis. That was the diagnosis of her two physicians. They hedged a little and were a little uncertain, but it was clear to their minds that she had appendicitis. She had just reached the sixth month of pregnancy. She was lying on her back, with her limbs drawn up, with her abdomen distended and very tender. She had run a slight temperature, she had constipation and some nausea. She had been treated by the plan of giving nothing by the mouth. I did not think she had appendicitis; examination of her per vaginam did not show that there was any trouble in that direction. I suggested six grains of calomel and one grain of henbane, and if it did not move by six o'clock, to follow it up with an enema of soap-suds and asfoetida. The result was she had complete relief, and after the action of her medicine she was able to turn over in bed and stretch out her limbs with perfect comfort.

The only thing that happened was that ten days afterwards she had premature labor. Her doctor called me up over the 'phone and said that he had found a mass in the right iliac region. I asked him what he thought it was. He said he thought it was pus. I told him if that was the case it should be let out, but heard nothing from him until a short time afterwards he said this mass had gradually disappeared—there was never any pus in the stones. There was never any subsequent temperature and I heard from the patient not long ago and she had gotten absolutely well. This is another case, I am satisfied, that she had these symptoms due to the impaction about the upper part of the ascending colon, and I simply want to say that fecal impaction in the colon may give rise to symptoms so similar to appendicitis that if a surgeon sees it he may remove a very innocent appendix.

DR. POTTS closes discussion: *Mr. President, and Gentlemen*:—I feel very grateful to this Association for this free discussion and will say in conclusion that it is fortunate for the patient (and the operator) that these cases usually require an operation. Those cases, just as Dr. Upshur has reported—we don't know what is in the right iliac fossa. We don't know what is in there now, and we don't know what will be there later. If we follow those cases up, we will find they will require an operation. When an early operation is done, those cases get permanently well, and are relieved as decidedly as they are from the castor oil, henbane and high enema.

“Gall Stones”—Dr. LeGrand Guerry, Columbia, S. C. (*See index for paper.*)

Discussion—DR. H. M. TAYLOR, Richmond, Va.: *Mr. President and Gentlemen*:—I have listened to this paper with a great deal of interest. There are few subjects of greater importance, and I congratulate the author upon his exceedingly comprehensive paper. I think that he has struck the key-note to a great deal that is interesting to us in connection with this subject in mentioning the fact that the incipency of the whole trouble is a drainage stasis. We admit now that gall stones are products of a mild type—not acute infection. Acute infection produces acute cholecystitis. Empyema, perforation, pericholecystitis or mild infection produces gall stones. If we can prevent this mild infection plus bile stasis, we will have made the first step towards preventing gall stones and other equally important sequences of bile tract infection. The gall bladder is a cess pool—just as much so as the appendix. Dr. Mayo has well said, its morbid tendencies illustrate the truth of the claim that “Satan will find mischief for

idle hands to do." The gall bladder is not flushed like the urinary bladder, the pelvis or the kidney, or the common duct. It is not a reservoir for the bile. Whoever heard of nature calling upon a single duct like the cystic to carry a stream of gall into the gall bladder and by the same route a current out, or a one-ounce reservoir for a forty-ounce daily output? Dr. Murphy called attention years ago to the fact that no one ever saw the healthy gall bladder empty, and the specific gravity of the bile in the gall bladder differs from that in the common duct.

There are 40 ounces of bile discharged from the common duct, every day, but the gall bladder is not flushed; that is perhaps why there is so much infection in the gall bladder.

In not a few cases we cannot hope to differentiate beyond all question what the marked change is, existing in the upper right quadrant of the abdomen. Functionally the organs are so interdependent, anatomically the relation is so close, often we can only say there is a surgical condition calling for interference, to see what was the incipient lesion and what the remedy called for.

In fifty per cent. of cases it is claimed the trouble in the upper right quadrant has its origin in bile tract infection, notably in cholecystitis and pericholecystitis. We must appreciate this to sanction the claim that the symptoms of gall stones (bile tract infection) are the symptoms of indigestion, and to understand why a crippled digestive apparatus through mechanical or reflex effects is such a common sequence of the marked changes incident to cholecystitis, cholangitis and their consequences.

DR. A. B. KNOWLTON, Columbia, S. C.: I, with many others, have enjoyed Dr. Guerry's paper very much.

I heard a physician say this morning that it was very strange that the practitioner was compelled so often to call a surgeon into consultation to establish the diagnosis. He said he did not see why, once in a while, the surgeon did not call in a physician to establish the diagnosis. I agreed with him, but we must remember this: The physician sees all of these cases that are surgical, purely from a physician's standpoint, and I cannot but believe if he had the opportunity to see how many gall stones are removed, and how many cases of the removal of the gall bladder bring health—removal of gall stones bring health—without there ever having been the slightest suggestion of jaundice, or any other classical symptoms of that disease, such as jaundice, etc., I cannot but believe that he would come to the surgeon's conclusion—that the earlier we make our diagnoses, the sooner we get rid of trouble, but just as soon as indigestion appears in a woman that appears to be healthy, and that indigestion is persistent and the suffering becomes more and more aggravated, I cannot but believe, as the gentleman quoted Dr. Mayo a few minutes ago as saying, the case is surgical, and while it may not be gall stones or appendicitis, as a rule you will find the cause.

Tumor of Caecum and Ascending Colon—Removal and Recovery—Dr. A. B. Knowlton, Columbia, S. C.
(*See index for paper.*)

Discussion—DR. STUART MCGUIRE, Richmond, Va.: This paper of Dr. Knowlton's is one of the most instructive and interesting I have ever heard. I think the Society owes him a vote of thanks for having reported the case so fully. As it is on the cecum, and as I did not participate in the discussion of appendicitis, I would like to ask if there is a surgeon in this room who

has ever seen an impacted cecum in any of his abdominal operations. I haven't got accurate figures, but I have performed laparotomies several thousand times and I have never seen an impaction of the cecum or ascending colon. Dr. Upshur states that he believes he has seen two cases. What I want to know is whether there is a surgeon in this room who has ever put his finger on it. Doctors suspect it. Is there a single case where the surgeon has found it?

DR. MERRILL RICKETTS, Cincinnati, Ohio: It is very gratifying indeed to listen to a report like this, and I feel compensated for my journey if I don't hear anything more. The case reminds me of one reported by Dr. Bernays, of St. Louis, where he removed, I believe, a portion of the transverse ganglion for gangrene, resulting from the kick of a mule. The patient recovered. And he had two cases where he resected the cecum within a few months. The other was gangrene, resulting from something, I don't know what, and both these cases recovered. This is the first time that I know of it resulting from anything other than gangrene. I am sorry there was not a microscopical examination made.

I am very glad Dr. McGuire brought the question up as to impaction of the cecum. I have never seen it, but I have heard of it. I have always adopted the teaching of Tait—that is, we open the abdomen to see what is the matter. It is only the surgeon who knows what is in there, when he gets in, and sometimes he don't know when he has been in. The impaction of the cecum is a thing that to me is sort of imaginary, and I heard a gentleman say (talking about the base of the appendix), "We don't know where the base is," and if you will look in Kelley's books on appendicitis, in relation to the cecum, you will find, in the early life—probably fetal

life, or afterwards—the appendix became detached from the gall bladder.

I am very glad to have the matter brought out, for I think it is well to understand the impaction of the cecum. We may have impaction of the ascending colon. As to obstruction of the ilio secal valve, I have seen one or two cases, but where it is..... I have never seen it.

DR. J. N. UPSHUR: The surgeon, Dr. McGuire (for whom I have a great regard), lost sight of one fact: I want to say, I did not use the words “impaction of the cecum,” but I said impaction of the colon. A fundamental part of surgical technique is to freely move the bowels before any abdominal operation; of course therefore, the surgeons never find any impaction of the colon. I don't claim to be infallible. I have been practicing medicine for thirty-eight years and have no doubt I have made mistakes in diagnosis, many times. I would not like to say that patients have not died as a result of those mistakes. If so I don't know that they died as the result of anything that I have done. Can the surgeons say as much?

Goitre and Its Treatment—Dr. Stuart McGuire, Richmond, Va. (*See index for paper.*)

Discussion—DR. SOUTHGATE LEIGH: I, like the rest of you, have listened with a great deal of pleasure to this paper. I would like to say something about the treatment of goitre by galvanism. I do not mean to say I am in favor of it, but we come across patients who will not submit to an operation, and in the past ten years, especially the first six years of that time, I used galvanic treatment considerably. We don't have a large

number of these cases. It takes a long time to get any result.

I apply one sponge to one side of the gland and another to the opposite. I generally give them as strong a current as the patient will submit to without much discomfort. The sitting is continued for ten minutes; treatment given two or three times a week. I have treated cases as long as five or six months. The effect of galvanism is to contract the tissues of the gland. It seems to me to stop the growth—in three cases that I can recall, apparently permanently. Whether these cases would get better without treatments, I do not know, but I think not, as they grew steadily worse before the treatment was begun. I am heartily in favor of the operative treatment, but I mention these as instances where the patients were seemingly benefited by galvanic treatment.

DR. BEN K. HAYS, of Oxford, N. C.: While the discussion of appendicitis was going on, while I was lying low, I was behind the breast-works of those nominated conservatives.

I wish to say, in regard to goitre operative treatment, when we see a surgeon do a brilliant operation, we would like to know how that patient is going to get on for a few years thereafter, and I have had one patient who was in a critical condition from a large goitre. She was operated on at Johns Hopkins four years ago, since which time she has been entirely well. The case has made a great impression upon me, because of the fact that the woman is a poor negro woman and there was at the same time a lady worth perhaps a hundred thousand dollars (who, by the way, was not my patient). She was not operated on and died, because of the goitre.

DR. J. T. J. BATTLE, Greensboro, N. C.: I would like for the doctor to tell the age of the youngest patient with exophthalmic goitre he has had. The youngest I have seen was a patient who, at eight years of age developed this trouble. She was treated by a noted physician in Baltimore, for some months, with ice over the cardiac region and rest in bed, came home and stayed I suppose a year, and was carried to quite a noted Philadelphia physician, who used the other extreme. He recommended horseback riding for her, etc. He treated her and she was under his care a year or more, with no perceptible benefit for six or seven years. All treatment has been discontinued and I have not seen her, professionally, for probably two years, but see her on the street occasionally, and she seems to be getting a great deal better and gaining flesh. I saw this girl, professionally, five or six years, and always found the pulse from 120 to 160, and it proved to me that the heart is not so easy to wear out as many of us think.

DR. LE GRAND GUERRY, Columbia: Mr. President, I owe Dr. McGuire thanks, because I think the subject of operative goitre is being put on a more rational basis and its field of usefulness extended. It is a field I have been considerably interested in, espescially as to the best thing to do as to a case of exophthalmic goitre, with all the cardiac symtoms, rapid pulse, etc.

Three years ago I spent a very delightful September in Baltimore with Dr. Finney, and he told me that he had done about eight, or possibly nine or ten cases of excision of the globe of the thyroid gland for exophthalmic goitre. The woman, in one instance, when he operated, her pulse was 140, I think at the time of the operation. He did the operation under cocaine, and the operation was very satisfactory. Towards the end of

the operation she got right worn out and did not stand it so well. When I left four weeks afterwards, the woman was getting rapidly well and he told me that his experience in the cases of exophthalmic goitre had been very gratifying.

Since that time I have had occasion to operate on cases of goitre, two of which have been exophthalmic goitre, not without cocaine, however. The point is, that those two case recovered from the operation and up to the present time are perfectly well.

I am especially interested in this subject, because I have right now a case in a young girl about nineteen years of age, of exophthalmic goitre, and when Dr. McGuire closes the discussion I would be greatly obliged if he would be a little more full in regard to exophthalmic goitre.

DR. MCGUIRE: Mr. President, first in regard to the frequency of goitre. When I first began the practice of medicine, it was as my father's assistant and just at the time when he had published an article on the treatment for goitre by the cataphoric use of iodine. He used this treatment on a good many cases, apparently getting very good results. The publication of this paper brought a horde of cases to Richmond. This experience makes me certain that there are more cases of goitre than we appreciate. As soon as we can hold out to these people some safe and sure cure, we will find our hands full.

I continued to use electricity, combined with iodine, on patients with goitre for some four or five years, but gradually lost confidence in it and discontinued it. The patients did get well, but those who went home and stayed away got well about as well as those who stayed and had the treatment. In other words, goitre develop-

ing about puberty tends to spontaneous cure. The treatment satisfies them, makes them believe that something is being done for them, and gets the credit for the cure if one results.

I have operated on only a few cases of exophthalmic goitre. I don't remember ever seeing a patient under twenty years of age with the disease. I have a lady in my hospital to-day, sixty-five years of age, who has exophthalmic goitre. I am treating her with galvanic electricity, ice-bags and ergot. I know I have seen a dozen cases of exophthalmic goitre get well, not on account of the treatment, but on account of time. I don't think these cases ought to be operated on until their symptoms are urgent, because to operate is very dangerous. I believe the treatment by this new serum of which I have spoken will in a few years take exophthalmic goitre out of the hands of the surgeon and put it in the hands of the doctors.

Report of three cases of Post-Typhoidal Infection of the Ribs, Dr. J. Shelton Horsley, Richmond, Va. (*See index for paper.*)

Hip Disease, Dr. Joseph Graham, Durham, N. C. (*See index for paper.*)

Discussion—DR. W. H. H. COBB, Goldsboro, N. C.: Mr. President, I thank the gentleman for the complete manner in which he has written his paper. Those cases are not brought to our attention until they are so far advanced and it takes quite a long time to relieve them. The mothers seem to think that the pains are growing pains or rheumatism and we don't get charge of them until they are so far advanced that nothing can be done to relieve them. I thank you for the paper.

DR. CHARLES ROBERSON, Greensboro, N. C.: I have

not listened to a paper for a long time that impressed me with as much study as did that of Dr. Graham. He has not left much to say in regard to the treatment, about which we are all the most concerned. It seems to me the two main things to be remembered and to be carried out are absolute rest to the joints, which can be obtained only by completely immobilizing the joint, as he has described, and care of the general condition, which is best obtained by feeding and by keeping the patient in the fresh air and sunshine. In addition to that, since Dr. Russell, of the Post Graduate has made his Emulsion, good results can be gotten by the use of the Emulsion of mixed fats. I have used it in twelve cases and I believe in these cases of hip joint disease that to add the mixed fats to the eggs, milk and syrup of hypophosphites, with fresh air and sunshine, the recovery will perhaps be more rapid.

DR. J. SHELTON HORSLEY: The paper is such a thorough one that it does not leave much room for discussion.

DR. GRAHAM: I have nothing further to say. I wish to thank you very much. Dr. Horsley, what about the etiology of these cases? How did the germ get into him?

DR. HORSLEY: I believe the general theory is, in those cases, like the etiology in nearly all others, that there is some slight trauma, not sufficient to produce a decided injury, but presenting a field where germs take hold and multiply, whereas if these germs were to lodge somewhere else, the resistance being greater, they would be destroyed.

DR. STUART McGUIRE: Mr. President, I am sorry that owing to the fact that he was an invited guest, the Doctor felt some embarrassment about discussing my paper. He is a very interesting talker, and before his discussion takes place, I move, Sir, that our invited guests be extended all privileges of the members; that they are welcome to participate in the discussions. (Motion carried.)

DR. J. N. UPSHER: I want to thank Dr. Stengel for his paper, which was very full of interest to me. This question of myo-carditis is one that has interested me for a long time past and I have appreciated the fact that serious trouble of the walls of the heart, such as indicated by the Doctor, are overlooked.

It is impossible to go fully into the discussion of a subject of that sort, such as it deserves in the time allowed, but in connection with the causation of degeneration of the heart walls, I want to ask, interrogatively, if I may so put it, the question as to whether these degenerative conditions of the heart are not frequently due to such conditions of habits as to tend to impair the nutrition of heart muscle? Now, I know that among my friends there will be a smile when I suggest that possibly the excessive use of tobacco is back of this question. They will smile, because they know I do not use tobacco and that I jump on it whenever an opportunity presents, but I wish to say in all seriousness about this tobacco habit, we have been hearing all our lives about tobacco heart. If you will remember, tobacco exercises its physiological power through the pneumogastric nerve. In the constant stimulation of the pneumogastric nerve, its irritability is exhausted; it thus tends to impair the nutrition of the heart muscle.

It is in this way, when proprietary medicines are

coming so to the fore, and when the large establishments making these drugs and putting them on the market as headache remedies of various kinds, and when people are taking these things upon their own motion, and when frequently the doctor is encouraging them to do it and he does not prescribe intelligently, and is giving these preparations, which contain acetanilid and other tar derivatives cases of heart failure occur as the result of the use of remedies of this kind not always primarily as the result of immediate physiological action of that special dose, but that the habit having been formed, impaired blood conditions result and the heart nutrition been impaired and have been the cause directly, of the development of myocardial disease.

DR. STENGEL: I am sorry to have to leave immediately, but in answer to what Dr. Upshur has said, I agree with him as to the effects of tobacco. I have no doubt whatever in my mind that it has its effect upon the heart muscle. I prefer to deteriorate mine gradually.

As for as the drugs are concerned, I have seen a number of cases of acetanilid poisoning and have no doubt many are poisoned that way.

DR. HAYS: I want to ask you, Doctor, to tell us something of the pathology of the condition of the heart that follows grippe.

DR. STENGEL: I give it up. I think it is neuro-muscular, but would not like to put myself on the stand. I don't think it is determined.

DR. HUGHES: I move, Mr. President, that we have a meeting of the Executive Council.

DR. ROYSTER: I believe it is on the program that we will have no definite meal until nine o'clock, so, in order to prevent hunger overcoming us entirely, it might be well for us to be engaged. I wish, though, to make the following announcement: Immediately after the adjournment there will be a meeting of the Executive Council.

The new members elected to vacancies in the Executive Council are as follows:

From South Carolina: Dr. C. B. Earle, Greenville, S. C.; Dr. J. A. Hayne, Greenville, S. C.

From North Carolina: Dr. J. Howell Way, Waynesville, N. C.; Dr. I. M. Taylor, Morganton, N. C.

From Virginia: Dr. R. J. Preston, Marion, Va.

Motion was made and carried that the Society adjourn until ten o'clock Wednesday morning.

WEDNESDAY MORNING, APRIL 28TH.

Meeting opened by the President, Dr. H. A. Royster.

Dr. J. C. Walton, of Chase City, Va., read the first paper, "Rheumatism." (*See index for paper.*)

Discussion—DR. UPSHUR: I only want to say a few words on the subject of rheumatism, because time is too limited to go into the full discussion of the question.

First, as to causation: I don't know what the cause of rheumatism is, but I believe that the cause back of it is a condition of metabolism very similar to the condition which I believe as causative of gout. They are very nearly akin, in many respects and I believe that there are nutritive changes which have taken place in the system which predisposed to cause rheumatism and the

disease developed as result of some exciting cause, for instance, exposure to cold or drafts or something of that kind. I mean by the nutritive changes that the causes are complex, embracing digestion, and therefore that in treating rheumatism one of the first essentials is a thorough unloading of the portal circulation by the administration of a good dose of mercury, in order that the liver may be in good eliminative condition, because if we know anything at all about rheumatism it is that benefit comes when we get the eliminative organs in such condition that they work actively and eliminate the effete matters from the system, for in regard to drugs administered, my convictions are very profound that the man who treats it by the salicylates primarily commits an error and lays his patient liable very much more certainly to the development of cardiac trouble. I believe the treatment for the first twenty-four or forty-eight hours or longer is, after getting the bowels thoroughly unloaded, to give to that patient a pure alkaline preparation of bi-carbonate of potash, in my experience, to bring about a neutral condition of the urine, and when that condition is established, then he may give his salicylates and get more or less benefit, as the result of its administration. Usually pursuing this method, I have had right prompt relief. Of course I have seen, as others have, cases where there was profound complication and where the joints themselves being involved, and in spite of all that could be done cardiac trouble produced. I believe the greatest care should be exercised in the treatment of these cases where cardiac trouble has developed and I think the best thing is to administer carbinate of ammonia keeping the patient quiet, and keeping him quiet for a protracted period of time.

DR. E. T. DICKINSON, Wilson, N. C.: I want to tell of a case of rheumatoid arthritis. I think there is no doubt of its being rheumatoid arthritis. However, it was before I was able to diagnose rheumatoid arthritis, so I got my neighbor, Dr. Cobb, to come over and diagnose the case, and Dr. Cobb not being in attendance on the case, you will agree with me the patient cured herself. This patient had all of the most exaggerated chordee-like deformities imaginable, in all the limbs, including the hip joints, the fusion was complete, absolutely no motion of the joints for two years. During this time this patient was in bed, unable to turn and a great part of the time so sore as not to allow to be turned in bed. It was the most severe case that I have ever seen, and still this patient was so persistent in the belief that she would be cured, and that she had to take some part in it, that she was cured by continuous manipulation, I think. We used the hot air regularly for several months, and that gave some movements, together with the manipulation that she gave. She discovered by manipulating her fingers, after using this hot air apparatus, that she could move them a little, and she argued that she would end with greater motion of the fingers, and followed it up until she loosened up every joint in that way, until she was able to walk, and she finally became able to take a position as book-keeper in a store, and a little later on, (I think five years from the time she was taken), she was able to dance gracefully on the waxed dancing hall-floor, and I learn now that she is about to rise to the higher plane of matrimony. I think the patient is cured.

DR. COBB: I had the good fortune to see this case, and can sustain Dr. Dickinson's report. The case is absolutely true, regardless of what Dr. Ricketts says.

DR. HORSLEY, Richmond, Va.: It seems to me, Mr. President, that a pathological joint could recover as well as organic disease of other organs. In pneumonia we have pathology of the lungs, which clears up, and we know that under proper treatment, simply with rest and the healing methods of nature, pathological joints do recover.

One other point I wish to mention and that is the possibility of complete ankylosis. I suppose occasionally you find a case of ankylosis after rheumatism that is complete and permanent. There is ankylosis that can be overcome with medical measures, but sometimes ankylosis that follows rheumatism is absolutely unable to cure except by surgical operation. What brought this to my attention was a paper of Dr. Murphy's, read about two years ago, in which he suggested in ankylosis, particularly of the knee joints, to open the joints. I had occasion to operate upon a case about three weeks ago last Tuesday, in which there was complete ankylosis of the knee joint, due not to rheumatism, but of exactly the same character, in which I followed up this method, taking two long flaps from the fascia lata of the thigh, one on the inside and one on the outside of the thigh, and one flap from the outer side of the leg. Of course it is too early to report permanent results, but after dissecting away all ligaments except the posterior and getting free motion, the wound healed satisfactorily and at present, while it is too early to judge of permanent results, the patient has marked motion. It certainly offers quite a new field for the treatment of those hopeless ankylosed joints that can be offered no other method of cure.

DR. J. S. IRVIN, Danville, Va.: The case Dr. Walton referred to, the man was from Danville, although I

never saw the case until afterwards, but I did hear about it and knew that the case was treated for a long time. The joints were opened, thinking it was a tubercular condition, and he afterwards went North and was treated for a long time. I don't think there is any question of its being rheumatoid arthritis. I happened to be at the Mecklenburg New Year's day and he danced the german, with the slightest little limp. I consider it a very remarkable case.

DR. WALTON: I will not take up your time. I agree with Dr. Upshur in the eliminative treatment and in using a dose of calomel in the beginning. I believe that rheumatism is an eliminative disease, and that it is frequently caused by disturbances of metabolism, and I agree with Dr. Dickinson also as to hot air and massage in these cases. I have seen cases of rheumatoid arthritis derive great benefit from hot air and I agree with Dr. Horsley, I don't see why a rheumatoid joint should not recover its function. I don't want to go on record as saying that rheumatoid arthritis, in its latter stage, can be cured. I believe in the early stage it is curable, but if it goes on to the latter stage, I believe it is incurable; changes occur and destruction of the joints, so that it cannot possibly be repaired.

I thank the gentlemen for the complete discussion. The paper was gotten up hurriedly and was only brought up to create discussion.

A few cases of Genito-Urinary Surgical Interest, Dr. Robert C. Bryan, Richmond, Va. (*See index for paper.*)

DR. CROWELL, Charlotte, N. C.: Mr. President, I am sorry that I have not had the opportunity to try the suprapubic plan of removing the prostate gland on ac-

count of having no case in which I considered the suprapubic route preferable. I have been so thoroughly a convert to the perineal route as designated by Dr. Hugh Young, of the Hopkins, that I have only done this operation through the perineum. When I first did the operation I removed the gland in its entirety, through the perineal route, regardless of the ejaculatory ducts and without making any effort at all to save the ducts or the seminal vesicles, in other words, I did the operation by anastomosis, going into the urethra just anterior to the prostate gland and cutting the membranous urethra in front, shelling out the prostate gland and bringing the vesicle sphincter anteriorly and anastomosing this with the membranous urethra.

After Dr. Young devised his operation for saving the ejaculatory ducts, I have since that time been removing the gland in this way. We are all aware of the fact that it does not make much difference as to whether we save the ejaculatory ducts and seminal vesicles in a great many instances, yet there are cases in which we are certainly justifiable in saving the sexual man as much as possible. We are also aware of the fact that men of fifty years of age very often need an operation for the removal of the prostate gland, and yet the man sexually is very strong, and I think it is well to save the man sexually as much as possible.

A man sixty-five to seventy-five years of age, I think we can go ahead regardless of the man sexually. In the very old man I think the Doctor's plan—the suprapubic plan—would be an ideal plan of removing the gland. I want to assure the Doctor that after talking with him, in a proper case I shall certainly try this method of removing the gland. We can all see very readily that the dense fascia that we have to go through to remove the gland by the perineal route does interfere, to a certain

extent, with removing the gland in that way. Suprapubically you can go into the bladder and shell the gland out and peel it off from the prostatic urethra very easily and leave the prostatic urethra intact. In this operation the drainage is the only difficulty. (Time called.)

DR. JOS. GRAHAM, Durham, N. C.: I have not had very much experience in these cases. I have never done either operation myself but I have assisted in suprapubic probably five to seven times. In each case I think we had death inside of three days; therefore I have not much respect for the suprapubic method. In that case the gland would not be removed by dissection, but by twisting it out.

I have seen the perineal done a few times and the results were good. If I were going to do the operation I would take the perineal route. Dr. Royster has had much experience along this line and I would like to hear from him.

DR. H. A. ROYSTER: Gentlemen, my experience has been only on one side of the fence. I take the prostate out in fifteen minutes with a perineal incision. It always seems to me that the quickest way is the easiest way, and that an operation quickly done is well done. I think it depends largely on a man's training and his way of looking at these things. I believe that the consensus of opinion is—certainly among the genito-urinary surgeons—in favor of the perineal route, but I am willing to be convinced by proper argument.

I think the dangers of operating through the suprapubic incision are much greater than the other way, and the results are no better. It strikes me that the perineal route is the most ideal, and we are not so much concerned always with the preservation of the urethra,

(though that can be done through the perineal way), as we are in getting the prostate out and draining the bladder. As for the stones, they can usually be removed through the perineum as well as through the abdominal incision.

My experience has not been large, but it has been, as I said before, on one side of the fence, and very satisfactory.

DR. A. B. KNOWLTON: I have been very much impressed with the ideas promulgated by Reginald Harrison in the matter of removal of the prostate and the subsequent absolute need of free, unobstructed drainage. There are cases in which it is impossible, really, to remove the prostate through the perineal region, for the simple reason that to take it out through that route there would necessarily be incurred too much damage to the surrounding tissue. I have done both operations and the combined method. Dr. Harrison is in favor of the combined method, for the reason that you can do such a clean operation through the suprapubic on one hand, and by doing at the same time a perineal section, you obtain such perfect drainage that it seems to me, with the assistance of my limited experience, that I get the best results, and the least danger of alimentary fever through the combined method.

Of course the exact cause of the fever is a question, I think. While we believe it is, in a strict sense, in the sepsis, yet it strikes me if it were, we should not have alimentary fever.

But there are cases on record, nevertheless, where the aseptic sound has caused shock and a little alimentary fever, but whether the question is settled or not, it is satisfactory to my mind that drainage is settled or

not, it is satisfactory to my mind that drainage is the most important thing.

By the suprapubic method we get a nice, clean operation, and by means of the perineal section we get perfect drainage. That, in my limited experience, has given perfect satisfaction.

DR. GUERRY: My experience also with prosectotomy is a limited one. From my own standpoint I have nothing to say, but so far as the perineal route is concerned, I think that the operation of Dr. Young, which I have had the pleasure and privilege of witnessing him perform in about twenty cases, is a distinct epoch in this region. I think Dr. Young had been seventy-five or a hundred prosectotomies without mortality. There has not been, I am quite sure, more than one death, if that, and my recollection is that he has never had a death. It is an operation that he very easily completes in fifteen minutes. On one occasion I saw him complete an operation with a man eighty years old in less than fifteen minutes. It is comparatively an easy matter to remove the middle lobe of the prostate. It is also easy to open into the bladder, and on a number of cases I have seen him extract stones from the bladder with almost equal ease. Not only so far as the condition of the prostate is concerned, but the condition of these old people, generally, and the kidneys—it is of the utmost importance to see that the kidneys and alimentary tract are gotten in as good condition as possible. It has this additional advantage, as drainage is such a *sic ne quo non* that it is very much easier for water to run down hill than up.

Another point that Dr. Young emphasizes, and that is, he uses for from twenty-four to forty-eight hours a continuous irrigation of the bladder.

DR. ROBERT C. RYAN, Richmond, Va.: Mr. President, I have had an opportunity also of seeing Dr. Young do this perineal route. It is by this method that he has trained his hand that is now most skilled in this line. I have also had the pleasure of seeing Drs. Harrison and Freyer do this operation, and they claim that the suprapubic is the only route by which the prostate is most easily reached. I think when we recall the proximity of the rectum (which even the most experienced operators will tell you to carefully avoid), when we recall the arteries which easily retract under the ischium; when we recall the depth of the internal sphincter, which we all have done, and these elongated..... and have not been able to see what we were doing, onlyinto the bladder; when there may be pockets in which stones are caught and held—we know nothing of the bladder wall; we know nothing of the condition of the bladder.....and as compared to perineal wall, when we reflect the peritoneal being a cavity into which we can put both fists; when we recall the stones; when we recall again the middle lobe that causes the obstruction, one side or the other being elongated; when we can put our finger into the rectum and shove up this gland and easily strip off this fascia, I think the perineal in every instance ought to be adopted, rather than the suprapubic.

The Secretary read telegrams from the following, regretting their inability to attend this meeting: Drs. W. E. Anderson, Farmville, Va., W. P. Zimmerman, Batesburg, S. C., and Floyd M. McRae, Atlanta, Ga.

The Society was invited to the Kilties Scotch Band at Converse College by Dr. Manchester.

Committee appointed at Greensboro meeting to report at this meeting upon the suggestions embodied in

Dr. W. L. Robinson's address, reported as follows:

Your committee on the address of ex-President Robinson beg leave to report as follows:

That the address be published in the next edition of the transactions of this Society on account of the valuable suggestions it contains.

That we heartily commend the idea of the medical fraternity's being represented in all legislative and governing bodies.

That the local societies publish the suitable papers read before them on hygiene and sanitation in the lay press.

That we especially commend the establishing of a system of lectures on these subjects in the public schools by local physicians.

That the valuable suggestion of not patronizing local druggists who advertise patent medicines, should be brought to the attention of the members of this Society by a suitable resolution.

That we do not recommend the establishing of a permanent committee on Preventive Medicine because the field is too broad for one committee, but we do recommend that a permanent committee be established on the Prevention of Tuberculosis, and that this committee consist of five members who will affiliate with the National Organization for the same purpose.

Respectfully submitted,

C. V. REYNOLDS,
JESSE H. TEAGUE,
W. F. GORDON,
F. J. CLEMENGER, Chmn.

A recess was then ordered until 9 a. m., Wednesday.

Meeting of the Executive Council

At 9 p. m., Tuesday, the Executive Council held a session at which the following proceedings were held:

Vacancies on Executive Council were filled by appointment of Dr. Benj. K. Hays, Oxford, N. C., Dr. C. B. Earle, Greenville, S. C., Dr. J. Shelton Horsley, Richmond, Va.

It was moved and adopted that invited guests always have full privilege of floor.

The following committee was appointed to audit Treasurer's account: Drs. J. N. Upshur, G. DeFoix Wilson and W. H. Cobb.

Dr. Upshur offered the following:

Resolved, That members of Executive Council shall be eligible to election to any office during his term. This does not apply to members ex-officio.

It was ordered that White Stone Springs Company be thanked for their courtesies and hospitality to the Society and vote of thanks be extended to the local committee of arrangements, composed of Drs. F. L. Potts, O. W. Leonard, J. H. Allen and G. DeFoix Wilson, chairman.

Secretary was ordered to have Dr. Royster's able address published not only in the leading medical journals, but also in the secular press of the three states. Dr. H. A. Royster was unanimously elected an honorary member of the Society and the following were made members at this meeting:

Dr. E. W. Carpenter.....	Greenville, S. C.
Dr. Hugh H. Trout.....	Staunton, Va.
Dr. James H. Downey.....	Gainesville, Ga.
Dr. R. M. Dorsey.....	Spartanburg, S. C.
Dr. A. M. Whisnant.....	Charlotte, N. C.
Dr. James S. Brown.....	Hendersonville, N. C.
Dr. John R. Irwin.....	Charlotte, N. C.
Dr. G. P. Neel.....	Greenwood, S. C.
Dr. LeGrand Guerry.....	Columbia, S. C.
Dr. A. McG. Wallace.....	Gate City, Va.
Dr. John E. Cannady.....	Paint Creek, W. Va.
Dr. J. F. Williams.....	Roebuck, S. C.
Dr. M. W. Chambers.....	Jonesville, S. C.
Dr. H. T. Hamer.....	Jonesville, S. C.
Dr. A. R. Johnston.....	Reevesville, S. C.
Dr. D. H. Montgomery.....	Union, S. C.
Dr. Claud G. Gambrell.....	Abbeville, S. C.
Dr. W. L. Kirkpatrick.....	Pacolet, S. C.
Dr. W. O. Southard.....	Jonesville, S. C.
Dr. Jos. G. Gouig.....	Union, S. C.
Dr. Wm. DeB. MacNider.....	Chapel Hill, N. C.
Dr. C. W. Austell.....	Union, S. C.
Dr. S. W. Pryor.....	Chester, S. C.
Dr. J. Howell Way.....	Waynesville, N. C.
Dr. Dabney Trice.....	Charlottesville, Va.
Dr. Ennion G. Williams.....	Richmond, Va.
Dr. Theodore Maddox.....	Union, S. C.
Dr. John M. Lawson.....	Union, S. C.
Dr. A. C. Smith.....	Union, S. C.
Dr. Paul La Roque.....	Richmond, Va.
Dr. F. D. Drewry.....	Virgileina, Va.
Dr. L. J. Blake.....	Spartanburg, S. C.
Dr. Wm. P. Mathews.....	Richmond, Va.
Dr. Thos. McMullan.....	Hertford, N. C.

The following officers were nominated for the ensuing year:

DR. ROLFE E. HUGHES, President.....	Laurens, S. C.
DR. ISAAC M. TAYLOR, Vice-President N. C.....	Morganton, N. C.
DR. J. A. HAYNE, Vice-President S. C.....	Greenville, S. C.
DR. W. E. DRIVER, Vice-President Va.....	Norfolk, Va.
DR. J. HOWELL WAY, Secretary and Treasurer...	Waynesville, N. C.

SPECIAL SUBJECT FOR DISCUSSION NEXT MEETING:

“Surgery of Stomach.”—Leaders of debate, Dr. J. E. Stokes, Salisbury, N. C.; Dr. Manning Simmons, S. C.; Dr. Stuart McGuire, Richmond, Va.

It was ordered that the secretary notify all in arrears three years and unless they pay, drop their names from the roll.

Richmond, Chase City and Norfolk, Va., all invited the Society for 1907, but Norfolk was finally selected.

The session of the Association resumed at 9:30 Wednesday a. m., Dr. Royster in the chair.

WEDNESDAY MORNING, FEB. 28, 1906.

“The Frequency of Surgical Cure of Duodenal Ulcer,” Dr. W. D. Haggard, Nashville, Tenn. (*See index for paper.*)

DR. J. W. LONG, of Greensboro, N. C.: I have heard it said that “the best part of a sermon is the man who preaches it.” Judged by this standard alone, this is a most excellent paper that we have heard. The first medical lecture I ever heard was delivered by the distinguished father of the author. I have watched Dr. Haggard’s work all through his professional career, and it pleases me very much to hear the results of his experience and studies on this subject.

Just recently Dr. Haggard published a paper in the *Journal of the American Medical Association* entitled, “The Present Status of Gastric Surgery,” and this paper on Duodenal Ulcer is largely supplementary to that paper. It would pay us all to study these papers together because they make a most excellent resume of the twin subjects of gastric and duodenal surgery.

I think perhaps all of us have understood but very little of the complex and complicated question of diges-

tion. Last month A. J. Ochsner, of Chicago, published in "The Annals of Surgery," a paper illustrated by many cuts drawn from post-mortem findings and from his operations, showing the fact that at the upper part of the duodenum, just below the papilla which marks the opening of the common duct in the duodenum, there is a sphincter, and that the true function of the duodenum is to act as a kind of mixing chamber for the food and gastric juice, bile and pancreatic juice. In other words, Dr. Ochsner has shown very clearly (I have watched his work at the operating table and studied his work carefully), that the duodenum is about the most important organ concerned in digestion.

Now, the very activity of the duodenum makes it a vulnerable point, so that it is easy to understand, as stated by Dr. Haggard, the frequency of duodenal ulcers; and it is also easy to understand how it is that to side-track the food current by letting it pass for a time through an artificial opening from the stomach into the jejunum will give rest to the duodenum and allow the ulcer to heal.

Now, one thing which Dr. Haggard did not mention is an observation by William Mayo, who, you know, is the president-elect of the American Medical Association, and has had perhaps the largest experience in gastro-intestinal surgery of anyone in America, if not in the world. I had occasion to witness his work, and at that time he had done over five hundred gastro-intestinal operations. Mayo noticed on making a gastro-enterostomy for a duodenal ulcer, as described by Dr. Haggard, and for a gastric ulcer, that after the ulcer gets well there is often a return of the food current through the pylorus. In other words, when the disease is cured the normal food-current reasserts itself, so wonderful is the provision of nature. This is a remark-

able thing, and is an additional argument, I think, in favor of the operation which Dr. Haggard has explained so lucidly here today. I certainly feel that if we hear no other paper we are more than amply repaid for attending this meeting.

DR. STUART McGUIRE: Mr. President, there is nothing I can add to the paper, except to cordially endorse the views expressed. During the past one or two years I have done some gastric surgery. I have never seen a case of simple ulcer of the duodenum. I have never found the condition except associated with ulcer of the stomach. I would like to report very briefly two cases that bear on this paper, both gastro-enterostomies: One was a woman who was suddenly seized with very profuse gastric hemorrhage, and came near dying. She improved slowly and was brought to Richmond. I opened her abdomen and found numerous ulcers at the pyloric end of the stomach and in the duodenum. I was much interested in the case and examined the organs repeatedly and thoroughly. I pulled and manipulated and hauled about that stomach and passed my finger several times through the pyloric valve. I then performed a posterior gastro-enterostomy and did a satisfactory operation. The patient was put to bed in good condition, but that night she had the worst hemorrhage I ever saw. I at first feared that my hemostatic stitch had proved ineffective, and I considered reopening the abdomen, but I did not do so, as I was sure she would die on the table. The patient slowly improved and eventually made a complete recovery. The bleeding was undoubtedly due to mechanical injury to one or more ulcers.

The lesson to be learned is that you ought to handle the viscera very carefully, for fear that the operation

you are doing to prevent a hemorrhage will cause a hemorrhage.

I lost a case of gastro-enterostomy about three weeks ago. It was a negro who had cancer of the stomach. The disease was progressing slowly; the man was suffering severely, and I operated to give relief and to prolong life. I found the lesser peritoneal cavity almost obliterated. After some dissection I succeeded in exposing the posterior surface of the stomach and did a gastro-enterostomy by the suture method. The negro, after the operation, had no fever, no nausea or vomiting and made, apparently, a beautiful recovery. Ten days after the operation had been performed, the man being in a rolling chair, having for four days been upon soft food, and expressing himself as being satisfied of his recovery, he was suddenly taken with pain, attended by marked shock. The abdomen became distended and in twenty-four hours he was dead. Post mortem was made and there was found complete sloughing of the anastomatic opening. The duodenum was only held to the stomach by two or three stitches. There was a black gangrene, an opening almost as large as my fist.

Had the man developed peritonitis in three or four days after the operation, I would have thought it was due to some error in technique, but as he had done well for so long, we thought the operation successful. The most plausible suggestion to explain the fatality was made by one of my assistants, namely, that in getting into the lesser peritoneal cavity I had injured the pancreas and the leakage of the juices had caused the gangrene, the case being somewhat similar to President McKinley, who was reported to have died of gangrene caused by pancreatic leakage.

DR. HUGH M. TAYLOR, Richmond: As Dr. Haggard

has so well said, "there is perhaps no catastrophe that we are called upon to consider more appalling than perforating duodenal and gastric ulcer." The two conditions have to be considered together; they are closely related.

Our attention has been called to the fact that the upper four inches of the duodenum is practically a part of the stomach itself. Those secretions are not changed until they are mixed with the contents of the common duct, and we get the pancreatic and biliary secretions. The etiology of gastric and duodenal ulcer is perhaps not definitely settled. Mayo Robinson claims that it is not. Certainly we have gastric ulcer without hyperchloridia and whether the hyperchloridia is a cause and effect, or merely a coincident, he says we do not know; as far as he is able to judge he thinks it is due to oral sepsis. The first precaution he takes is to give the patient a good wash and a douche, as preparatory to work on the stomach. Dr. Haggard says in 1896 only nine cases of perforating ulcer of the duodenum had been operated upon. About that time I had the pleasure of saving a case of perforating ulcer of the duodenum.

Like so many cases, there was mistaken diagnosis; the case was mistaken for acute septic peritonitis incident to appendicitis. Robinson calls attention to the means of differentiating between acute gastric perforations which occurs on the anterior wall of the stomach and near the cardiac orifice. If the perforation near the cardiac end of the stomach occurs, the escaping contents passing to the intestines is shifted to the cavity and general peritonitis is the result, in duodenal perforation the escaping contents are directed to the right iliac region, the symptoms are those, primarily, of appendicitis. The early symptoms are the same. The

acute symptoms, violent shocks and pain are the same, but the symptoms of developing peritonitis are different. Illustrating the point Dr. Haggard brought out, the suddenness with which the condition may occur, justifies me in reporting a case I saw: A young girl ate her supper and walked to the depot with some friends. She walked back to the house, started to go up the steps, and was taken with violent abdominal pains. She had had some slight symptoms of indigestion but paid little attention to them. We thought it was appendicitis and opened the abdomen, but found nothing the matter with the pelvis and kept on hunting. We found a round peptic punched-out looking ulcer of the duodenum. That, I think, was the first case that was saved in America. A year afterwards Dr. Johnson of New York City saved a case and reported it, and mentioned the one that I had operated on as being the first successful operation in this country for perforating ulcer of the duodenum.

DR. SHELTON HORSLEY: The paper was so full of good points that I cannot single them all out. There is one point in the paper that I want to emphasize, and it seems to me a most excellent one, and that is the special preparation necessary for intestinal suture. It is true that a man who has had experience in appendicitis work, amputations and gynecology, may yet be incompetent to do a suture of the stomach or intestine. If a man operates for the first time, without experience in any way, he will find that it will be very much to the detriment of his patient. Operations performed upon dogs show early mortalities of 70 or 80 per cent., and so on until you get the thing down fine. There is no royal road to intestinal suturing. It must be practiced time and again on the lower animals.

There is one other thing that occurs to me too, as a danger of this method that Dr. Haggard mentioned. The case was reported by a surgeon at the Massachusetts General Hospital, Dr. Scudder. The case is as follows:

The patient, who had every symptom of pyloric obstruction was operated on. The stomach was found very greatly dilated; the opening was made near the pylorus, and a suture operation done according to the method of Mayo. I think he said that it was within about three inches of the origin of the jejunum. The patient made an immediate recovery and said he felt better the day afterwards than he had for a long time. The stomach rapidly receded to the original form, and about the fourth day afterwards he was taken with a sudden and violent attack of pain, which was not even controlled by morphine. He died promptly. Post mortem showed that the technical perfection had caused the patient's death. The drainage was so perfect that the stomach rapidly receded to its original position. The stomach was really drawn to the left by the pressure that was put upon it, and it was pulled loose, leakage and peritonitis occurring. It seems to me that this is a possible objection where there is no loop, or a very short loop.

DR. E. T. DICKENSON: I want to call attention to a practical method of performing gastro-enterostomies. A great many men have gotten into the habit of looking around for either a dog or a cadaver. Nothing else enters their mind. We lose eight or ten hours looking for some dog, or longer in looking for a cadaver, as Dr. Haggard to tell us something about the frequency and avers in this part of the country.

I think to be entirely successful in these gastro-enter-

ostomies, as we are not expected to have many, it will be well for us to follow the butcher out to the slaughter pens at least once a week, and do a gastro-enterostomy. It is as difficult done in this way as it is upon the living subject, and my experience is that it is as successful.

DR. JOS. GRAHAM, Durham: I would like to ask Dr. Haggard to tell us something about the frequency and duration of "vicious circle" after gastro-enterostomy. I don't think I have ever seen a case of duodenal ulcer. I have never seen a case of gastro-enterostomy at all. Recently I had a patient who was operated upon, who had an abscess, which was supposed to have been due to the duodenal ulcer perforated. Later, after making a very¹ good recovery and being able to attend to his work, he suffered a good deal. He was advised to have gastro-enterostomy performed. He did so, and immediately on his recovery developed terrific nausea and vomiting. It was necessary to wash his stomach out every twelve or fourteen hours. The vomiting was very bitter and contained bile. He was still vomiting when I was called away. I would like to know something of the case, what the result is going to be.

DR. W. D. HAGGARD, Nashville, Tenn: I am very appreciative of the very kind remarks that have been accorded to my paper.

In reference to the last case asked about: I am not prepared to answer that, of course. Each case requires a great deal of study, but I am sure, under Dr. Watson's care, it will improve. One thing about this "vicious circle," it is very annoying. Fortunately many patients do not have it this way. This man had a perforation and operation for the sub-phrenic abscess. If anything ever happens in this operation, you have no further loop. If you have a long loop you can make a

secondary intra..... and obliterate the "vicious circle." There are other things on that side that are troublesome. I remember on one occasion that the patient did have that same "vicious circle" in two cases, and the..... had to be broken up. If you have a "vicious circle," if Dr. Walton cannot cure him, that will have to be done. I have seen a few cases that had a little bile that were very troublesome and very annoying. Another case was in a neurasthenia woman. That does explain some of those cases. We must avoid the neurasthenics. They are the jack-o'-lanterns. If I could get rid of them, I would be happy. I do not mean to say that a person who is a neurasthenic ought not to be operated upon, but I do mean to say that you will make an ignominious failure in a great many cases. If you can cure his neurasthenia, perhaps you will be all right, but you have to break up the.....

Usually speaking, when we take up the stomach with the clamp, we pick in up in this way, and make the incision from the patient's left to right, as shown in picture.

In reference to anostomosis on the lower animal, I think that a very excellent suggestion Dr. Dickinson made, as well as Dr. Horsley. For instance, the gunshot wounds and the acute perforations of the duodena, typhoid perforations, etc., we find ourselves in a very desperate strait. You cannot do the operation on dogs, and other animals, I think are much more desirable. The pig is more desirable, because the walls and intestines are much more like the human. You can buy one and keep it and afterwards sell it back at a profit, if you do a gastro-enterostomy on it. Really on dogs it is very unsatisfactory. I was going to illustrate the Murphy button to my class on Monday and sent down the requisite amount of cash, and after hunting

a long while finally found such a very small dog that I had to do the conal suture. You see you have eight inches of duodenum, and then as it comes through the duodena dejunalis, you take it from that point and measure about three inches. It is immaterial how far it is from the duodenum. And from the point where the duodenum enters into the jejunum you measure two and one half or three inches. Oral sepsis is the important feature and the patients must have a clean oral cavity to start with. The irrigation of the stomach should not be done more than two or three times. We give them sterilized food and sterilized water even for some days.

With reference to Dr. McGuire's case: After I had made the anastomosis for pyloric ulcer, and to make sure what a beautiful opening I had, I inadvertently put one finger over the side of the ulcer and it went right into the stomach, just like a rotten apple. The patient made a very satisfactory recovery.

In reference to duodenal ulcer: I was encouraged to write this little paper because I had seen so many form in such a short time. One of these cases is of great interest, because it is not only duodenal but gastric as well and presented a pyloric tumor. The woman was a young woman, twenty-three years of age. She had tubercular bacilli in the sputum and a dull spot in the apex of the left lung. She was dying of emaciation, I thought that outside of tuberculosis, she ought to get well, because she had a well marked obstruction.

You have all seen cases of incipient tuberculosis who become pregnant. Unfortunately with parturition and lactation they go down hill again. I thought if I could establish a better condition, by better food, she would get well. She would not have lactation, as the pregnant women do, to contend with. I was delighted to find that she picked up in health and strength and she has put on

twenty-eight pounds in weight, and at the end of five months she is free of fever. I cannot say now what the outcome of the tuberculosis will be. I am very much interested in this subject, and I do not believe that any field in medicine, at the present time, outside of tuberculosis and cancer, require more thorough revision than the digestive apparatus, and I think that we are going to do more good than anything we are engaged in. It is the last of the abdominal conditions to come under accurate observation and thorough mechanical, surgical method for relief. We started at the appendix, the gall bladder, etc., and mastered that field, and I feel that this digestive apparatus is going to yield up its secrets and we will cure it.

“A new Method of Handling Compound Fractures of the Skull with loss of Bone, with report of Cases, Dr. Wm. P. Nicholson, Atlanta, Ga.” (*See index for paper.*)

DR. EDWARD MCGUIRE: In the case of Dr. Hunter McGuire's he removed a large portion of the skull and he used celluloid in that case. So far as I know (it has never been reported, but I recollect it thoroughly well. The injury to the skull was quite extensive and my recollection of it was that it was pressed, not fastened by sutures, in the opening. It was pressed into the opening and the scalp brought over it.

DR. STUART MCGUIRE: When I was in Louisville last December, Dr. Nicholson told me of this case and showed me the photographs. Since that time I have had opportunity to do the operation on two patients, one was a boy, with recent compound fracture of the skull; the other a boy with an old depressed fracture, who suffered from epilepsy. I procured the celluloid

puff boxes from a dry goods store and found the method which had been described, exceedingly satisfactory. I did not employ silver wire to anchor the plate, but used cat gut. I was also struck with the advantage of closing the wound with continuous cat gut sutures. Up to this time I had used interrupted silk worm gut sutures, but I found the method advised by Dr. Nicholson much more rapid and the hemostasis much more complete. I used number two plain cat gut and it disappeared just about the time the wound healed.

I do not think the use of a plate to cover the defect in the skull is original with Dr. Nicholson. I think the old surgeons after trepanning always employed a silver plate.

We are indebted to Dr. Nicholson, however, for telling us of the always obtainable, suitable shaped and very satisfactory article, the celluloid puff box top.

DR. GUERRY: I have listened with a great deal of interest to this paper of Dr. Nicholson's. I think it is a very timely one.

So far as the introduction of plates to cover this defect in the bone, I would say that the first experience I had was when I was in Augusta. I saw Dr. Downey, in two or three instances employ a silver plate. That was at least ten years ago. In one case I remember the plate had subsequently to be removed. After the union was complete (it was some months after the operation) the silver plate gave rise to sinus and temporarily the removal of the plate. I have resorted to this expedient twice within the last two months, to cover bony defects resulting from compound fractures of the skull, and in both cases used celluloid, and the wounds have healed kindly and the results have been very satisfactory.

DR. SOUTHGATE LEIGH: Mr. President, I wish I could get myself to believe in the use of these foreign bodies, Sir, in closing them in the tissues, but I cannot do it. I suppose if I had a very large loss of bone I might try it, if it was absolutely necessary. I have often wanted to do it, in cases I have operated on, but it has seemed to me that if the scalp is strongly sewed together, and if in addition to that we put on the outside and have the patient wear for a considerable time afterwards a metal plate, preferably of some soft metal, that can be shaped to fit the head, it will be safer. I would rather my patient to wear that plate for years, if necessary, than to undergo the danger (to my mind it is dangerous), of having this foreign body inside the skin. It is very difficult, we all must admit, however clean we are, to prevent some infection occurring in those wounds. You cannot make enough pressure to obliterate the free space, and considerable damage has been done by the injury, therefore it is necessary to put in a drainage material, or else leave space between sutures.

I would call your attention to the rapid lessening in the size of these bone openings after operating on the head. It is marvelous. I remember a case I had some years ago. A boy got his head crushed in the back with an axe causing extensive loss of bone. I watched that boy for about three years and it was remarkable how small that opening became. It was almost obliterated the last time I looked at it. I did not take measurements, but it was quite large. I used a plate of block tin on the outside of the scalp for several months, to protect the brain from injury.

I would like also to call your attention to the use of the chisel in operations on the skull. I know that most operators are inclined to the old trephine, followed by the saw or rongeur. I believe that some prejudice

against the chisel comes from the metal handled instrument and the metal mallet. If we would employ the ordinary carpenter's chisel and the wooden mallet, we can feel the force of our blows so much better and we can thereby absolutely prevent any injury to the brain, from the shock of these blows. It is very much safer, too, being able to feel the progress of the chisel, so as to prevent injury to the brain. I think we can get into the skull much more rapidly this way and with much less danger.

DR. EDWARD MCGUIRE, Richmond, Va.: I said the Doctor used celluloid; it was rubber.

In regard to suturing the scalp, think Dr. Nicholson is exactly right. Sometime ago I was called to a man whose horse ran off with him. A limb struck him in the forehead and tore off his scalp completely around his head, with the exception of two inches near the neck. You could take the scalp and put it back on the head. A physician had gotten there before I saw him and attempted to put it back. After I saw him I shaved the head and cleansed it as well as I could and sewed it up with continuous suture of cat gut, two inches from the neck, all the way around the scalp, and made a perforation at the lower end of the wound to drain it, and it was well in two weeks. I never saw as great a display of bone in my life. You could take up the whole scalp like a hood and lay it back, from his neck to his head.

DR. NICHOLSON closes Discussion: Mr. President, this closes up a question I am almost afraid to start to talk on. I intentionally did not take up in this article, the technique of brain surgery. I have written several papers upon that subject, and they are at such entire marked variance with the opinions expressed to-day,

that I know, from the time allotted me, that I could not go into them as I would like to, but my paper this time is only intended to bring up the question of covering up openings in the skull, that any man is liable to meet with in the form of a compound or depressed fracture of the skull. Of course the operations of opening the skull do not fall into the hands of everybody.

In reference to Dr. Edward McGuire's remark about the rubber, and Dr. Guerry's concerning the silver plate, those cases are not on record, and while I have no doubt that the skull openings have been covered up; the records of surgery do not show it.

As far as the silver plate is concerned, when the American Medical Association met in Atlanta in 1896, I heard the question asked by some one, I forget who, if any one present had ever employed a silver plate, had ever seen one employed, or had ever known authentically of any one being employed, and there was a negative answer from everybody. The universal opinion as to use of the silver plate is absolutely unfounded, as the records of surgery show. A skull was found in an Egyptian tomb that had a silver plate in it. Aluminum was recommended some years ago and the only allusion to it is Van Berger. Celluloid has been proven to be the foreign body that remains with less irritation in the body than anything else. Celluloid testicles have been introduced. I have a patient myself upon whom I introduced one nine years ago, without a particle of irritation from it. I have used celluloid-covered sutures in the intestines, and I have in many cases plugged up the foramina in neuralgia.

The points, though, that I will attempt to say something about are: In the first place, the use of the continuous suture. I have not used a suture in the scalp in years. The scalp clamp is curved to fit the cavity of the

incision, which locks it about 1-8 inch, and catches the clamp behind the suture line, and they can be put on in one or two seconds, but the continuous suture of cat gut, making long jumps, not sewing it up like you were trying to embroider some fine garment, but make long jumps, and the pressure between those will control the hemorrhages and not cut off the nutrition from the line of incision. I never dress the incisions under one week.

As far as the celluloid being a foreign body is concerned, with me it is simply practical experience against theoretical fear. I have put ten in in two years, and have never had any trouble from it. You can fit them on the head, and I have one man who has one of two inches diameter in his forehead, and no one can tell he has it there. I did have a case I operated on—a case of brain trouble—that had become infected. That man suddenly, without any warning, developed a brain abscess. I took out the plate and emptied the abscess and he made a complete recovery. The other cases have never shown any irritation, there is no soreness, and if a foreign body isn't doing any harm, in the first two or three months, I don't see where it is to come from. Celluloid cannot become united to the tissues, and silver wire is irritating, and we are safe. We know the cat gut will be absorbed, and I do not believe any union takes place between the bone and the celluloid.

Dr. W. E. Driver, of Norfolk, Va., presented a paper on "The Dwarfed and Deformed Mastoid." (*See index for paper.*)

DR. H. H. BRIGGS, Asheville, N. C.: This subject should be interesting to the general practitioner. I am sorry that there was a general exodus here when this session began. I am not sure whether it was caused

by the opening of this particular section on eye, ear and throat, or by the opening of the dining room door.

The subject is a very broad one and I would not try to discuss it in full.

Did I understand you to say, Dr. Driver, that there is about one dwarf mastoid to each family?

DR. DRIVER: Yes, I think so.

DR. BRIGGS: Well, if there is, I don't know what your definition of dwarf mastoid is. We do find them frequently and are very sorry to find them, because we generally find malposition of the lateral sinus and absence of the antrum.

As to the etiology: Just recently I have attended a case—son of one of our Asheville physicians—a case of scarlet fever—a child about six years of age, and there was complicating it pharyngitis, which simulated diphtheria—in fact it looked like diphtheria had developed during the course of the scarlet fever. In two days the child became listless, semi-comatose and I was called in to find both drums bulging and other symptoms of otitis media. The father thought some nephritic complication was beginning, but a thorough paracentesis of each drum and applications of nitrate of silver and saline douches to the nose and throat for about ten days resulted in the entire cure of the pharyngitis and both ears and I am sure had not the paracentesis been made, we would have found not only a continuation of the otitis media, but perhaps an entire loss of the drums, and a mastoiditis.

Another point of etiology is the indiscriminate use of Politzer bag which in my opinion causes very often otitis media.

DR. CROWN TORRENCE, Union, S. C.: I wish to thank Dr. Driver very much for his paper. I am sorry that

the practitioners left here. The surgeons have had the floor so long that they got tired and quit and the practitioners were tired before that and quit too.

This is a matter that comes to every man in the practice of medicine, this question of ear trouble in children, and it is something that we all ought to know a great deal about—a great deal more than we do know, and especially as sequelae to some of the specific diseases like scarlet fever, etc., which he mentioned.

I don't think it is any crime to examine the ears. I think it ought to be done at all times, in children, and every physician ought to do it all the time, when there is any symptom of pain which they cannot locate any other way, they ought to always make a thorough examination, not only of the ears, but of the nose and throat, which lead up to these ear troubles.

I have seen several cases of adenoids removed—cases where they had been removed—and three or four years afterwards those children developed ear trouble, and I think it resulted from the little crypts—adenoid tissue remaining in the little crypts along the eustachian tube and developing middle ear trouble.

Spontaneous rupture of the drum head ought not to be allowed to happen, if we have opportunity to see the patient at all. A good big and free incision of the drum head ought to be made so thoroughly that drainage will be so satisfactory that an accumulation could not happen afterwards. It ought to be so thorough that it would give results.

The average physician looks upon ear troubles as a sequel to specific troubles; he never looks at them as being incident to them at all; he looks at them as something that might happen afterwards, and if we would take that in mind and consider it, why I really believe we would not have so many middle ear troubles.

DR. DRIVER, Norfolk, Va., closes Discussion: As to what Dr. Briggs had to say, I unfortunately left out a little part in my paper. I found our surgeons had all left, so I left out the part in which I should have said that after doing a myringotomy then was the time for syringing, and I usually use a cleansing solution of one to eight one-thousandths of bi-chloride every two hours, and in the interim tuck in a piece of gauze for drainage.

As to my remarks calling attention to doing a radical operation, my object is to try to prevent a mastoiditis, and whenever you have that, you have, in a majority of cases, a deformed mastoid. In nearly every family you will find that when a child has had scarlet fever, etc., you will find a discharge, and whenever you have otitis media that has extended over a sufficient period of time, you have a deformity. They may come to you, with the discharge, but not rarely until they are brought to you by the family doctor, with probably pain in the head or perhaps deeper infection, with brain involvement.

I must apologize for not presenting two specimens. They are somewhere in the express. I have a specimen here that illustrates fairly well how large the oitis is in some cases, and how very small the mastoid in others and how easily pus can be forced through the atticus into the antrum.

Visceral Hernia, Breast Tumor and Appendicitis, Dr. John B. Deaver, Philadelphia, Pa. (*See index for paper.*)

Discussion—DR. JOSEPH PRICE, Philadelphia, Pa.: Mr. President and Gentlemen: You will permit me to criticise your Chairman for asking me to open this discussion. I have a great number of times gone back to

my native State to listen to discussions on appendicitis.

A few years ago it was customary for the Virginia State Medical to go into two camps on medical discussions of this subject. At the last meeting I listened to a paper, probably more scientific than the one you have listened to. The author reduced it to one treatment: that of our distinguished author, and operated the first day.

In the discussion there was a unanimous concensus of opinion—only six men entered it—there was but one treatment for appendicitis. He had boiled it down to a diagnosis and a surgical interference the first day—with a recovery. That about always follows. If you can operate upon one hundred cases of appendicitis the first day, you have one hundred recoveries; the second day you have two per cent. mortality; fourth, fifth and eighth days, 10 per cent.

We have from two sources of instruction in this country a mortality from it—two sources. Morris of New York had influenced the prejudice to drainage, with his cigaret drain. The Hopkins is the other institution for non-drainage and a lack of confidence throughout the country in drainage, that “he that drains does dirty surgery.” That was the criticism of drainage made at the Hopkins. Dear old Dr. Keith said, many years ago, “After all, where are we without drainage?” Dr. Deaver, I think, is in error when he criticises the gynological profession, because they gave us, primarily, the operation for appendicitis and gave us drainage, established it and practiced it. We have traveled right along with Tait, or his pupils, with drainage. The Hopkins side-tracked it; Morris and others side-tracked it, and but for Deaver it probably would never have been popularized even in general surgery again. He has done more to popularize it in gen-

eral surgery than any one else. Murphy threw up his hands at the Toronto meeting and said, "Will some one tell us how to save the desperate cases with perforation and peritonitis?" stating that the catarrhal or simple cases always get well, there is nothing much wrong with the appendix, but, he said in Toronto, "Will some one tell us how to save these cases with a rupture or gangrene appendix?" Reverse peristalsis, catharsis failing, catharsis and even enemas failing, a local toilet and drainage, and a post mortem twelve or sixteen hours later, demonstrating a general peritonitis and filthy peritoneal cavity.

He was told how to drain and cleanse that cavity. He was told how to drain. He came to Atlantic City and boasted of sixteen forms of perforation with general suppuration or infections peritonitis with toilet drainage and recovery. It would seem sometimes appendicitis recovers from the desperate conditions. The cases detailed by Dr. Deaver with recoveries sound like the nightmare of a battlefield, and when you witness those conditions you are prone to say, as you walk from the table, "There will be but one result of that case," but they get well in large numbers. Dr. Deaver's brother once said to me, "As long as they are not in articulo mortis, give them the one lingering chance, open them and make a toilet and save them."

When Dr. Deaver comes here and discusses a subject he has discussed all over this land—I have myself discussed it before State Societies, Tri-State Societies, and I did feel, a long time ago, that the last word had been said, but when a few papers had been read, which upset all the good we had done, some man comes along and tells us that cold storage is the treatment, and again we have to go back and fight this subject over and over again. Now, I fight it, simply because I know ap-

pendicitis has destroyed more people since the Civil War than minie balls destroyed during the war. If you take only one hundred deaths to the State annually, we have fifty-two hundred beautiful children of nine, twelve and sixteen years of age. Chicago recorded four hundred and fifty deaths in one year, notwithstanding they are advanced scientifically and skilful in their work, and I am quite sure that in our state we have tried and tried faithfully, to educate the profession to early diagnosis, early operations. We have done just as much as we can, possibly, clinically, to educate our neighboring practitioners to do this work at the first warning, and we have succeeded largely. An old practitioner in New York said that sweet oil was the treatment, and he influenced the whole medical profession to try sweet oil. That made me ashamed of my profession, that a scientific physician should get off such twaddle, and that a scientific profession could be so easily influenced. In Chicago they urge the big four treatment, cold storage, lavage and starvation and procrastination, and, as Morris said, "Good God, they have enough trouble without more starving."

Recently some man established a new and scientific treatment, "Burkeing," stabbing in the back. Now I differ from my distinguished colleague in agreeing in a measure with Murphy, but it isn't original with Murphy. I have no regard for walled off theories. I don't think Dr. Deaver has. I have no regard for a pathological wall of any nature in the peritoneal cavity.

One morning my little daughter said: "Papa, may I go to town with you?" I said, "Dear, I will be busy." She said: "Operating?" I said "Yes." I said, "What do you understand by operating?" She said, "Fixing people's insides right." I make it an effort daily to fix people's insides right, so I have no regard for walled

off theories; I have no respect for a pathological wall; I break them all down, and put viscera in normal relations, and when Murphy claims he attacks from the peritoneal side I smile at it and rejoice, for I have done it for twenty-five years. This week I went in from the healthy peritoneal side, but Deaver makes a mistake. If he neglects to break down that wall, he will sometimes find multiple pus pockets and other things beyond this seat of infection. It is our duty to cleanse and drain, and if you can arrest infections you can save lives, and if you don't arrest infections, you lose. But there is no subject, that I have clinical knowledge of, so important for discussion as the very subject, one and all, that Dr. Deaver has been over so scientifically, and he is the best man in this country, clinically and surgically, to discuss them or to relieve them. But I add, above all things, be a diagnostician. The country practitioner, if he was anything, is a diagnostician, and he is worthless without it. The diagnosis made, the patient is half cured. While many people at the cross-roads, behind the cotton gin or at the saw mill may be a little awkward about his surgery, if you will do this work early, you will have good results.

DR. UPSHUR: I wish Dr. Deaver had been here yesterday, when Dr. McGuire jumped on me in the way he did. I am afraid I am not very happy at expressing myself, so, I am like the old woman who was too sleepy at night to say her prayers, she wrote them out on a piece of paper and pinned them to the bed and said: "Them's my sentiments, Lord." I am opposed to being put in the category as being antagonistic to early operations for appendicitis. I was glad to hear Dr. Deaver say a peritoneum ought not to be opened unless there was some certainty that you would find something to justify it. That was what I said yesterday. (It was always a

conclusive thing, in my mind, when the pain was there.) It has always been present, to my mind—not necessarily located in the right iliac. I have seen it in various positions and I have always advocated early operation, and in the last two years I have seen two patients die as the result of procrastination, where cases were seen too late, and I wish to go on record, while I always advocate conservatism, that I believe in having the attendance of the surgeon for early operation, because I believe that therein lies the salvation of the patient; that it should be done before there is a lot of damage to the tissue.

DR. WM. P. NICHOLSON, Atlanta, Ga.: Mr. President, there is nothing that I can add, I think, except to take to ourselves especially the many points Dr. Deaver brought out as regards diagnosis and I think the most generally misleading thing is the question of the location of the pain. It is surprising how many doctors seem to be under the impression that in appendicitis the pain is over the appendix, when I am satisfied in the large number of cases I have seen it is comparatively a rare thing to find the pain located at that point.

I think one thing that Dr. Deaver did not mention, that has been confusing to me, certainly in two instances where I was called to see a patient where the abdominal rigidity was so great you could not outline any tumor, where it turned out to be a suppurative pyo-salpinx. The tumor rose up sufficiently to make a diagnosis before you could put your hand upon it. Yet the intense rigidity is sometimes so great that it is impossible to palpate the tumor when this has taken place. Of course that would not occur, probably, in the very early stage.

Sometimes I have seen a patient who had every symptom of appendicitis, yet when his abdomen was opened

he had a perforation right in his intestine, with the contents pouring out. I have seen abscess in the omentum requiring the removal of the entire omentum, and yet the patient made an entire recovery.

As regards the temperature and pulse: In the last two weeks I have operated upon the simple diagnosis of pain and tenderness, where the pulse was 72 and the temperature was normal, and the appendix was of the intenseness almost of a bicycle tire, and with a gray patch of lint on the outside, showing the infection was coming out. In a case of that kind, where the appendix was hanging inflamed in his abdomen, showing the infection was coming through the peritoneum, what I did do was to (close his entrails) put a couple of supporting sutures of silk worm gut and drain the wound, and it healed up in a few days.

If anybody ever removes an inflamed appendix from my abdomen, I hope he will put in at least a small drain, and I believe the time will come when we will drain almost every one of these cases, almost at the time we see them. You may not do any harm, in some cases, by not doing it, but yet if you do not, you may lose that case.

I have nothing further to add to the paper, which I am sure is a great delight.

DR. E. W. CARPENTER, Greenville, S. C.: The Modern Mastoid Operation. (*See index for paper.*)

DR. JOSEPH PRICE, Philadelphia, Pa.: Permit me after traveling so great a distance, to emphasize again the importance of specialties—of special knowledge. The author has given special emphasis to the few points that I am always practically interested in. The tendency has been to drift, in educational centers, to drift away from the specialties, and for some general practi-

tioners to lay his hands upon them, without special knowledge, and without pathological, diagnostical, surgical knowledge he should possess. I think that every city of two to five thousand inhabitants in a not remote period will have specialists. I feel the importance of them so much that I long for the hospital post graduate school for every city or town to possess its own hospital polyclinic or post graduate school. Spartanburg and other small cities in this State are quite large enough for a city hospital, and one that should be the pride of the town. The community, the church people, the bad people and the professional people—everybody takes interest in their hospital. It should be a school for the community, for the County Society; it should have the material in the county house or the poor house; the mastoid diseases and all the specialties taken care of and those people relieved and restored to usefulness. If it is important for you to have the physician for your wives and mothers to have their vision corrected, the best is bad enough to correct it. I emphasize the importance of more confidence in the specialists, and I am so glad to have them, when they come from other sources, to support each other. I have said about appendicitis in Philadelphia, that were I the president of the Pennsylvania Railroad, I would keep an office in Broad Street station, and keep an office for some one that would devote himself to that murderous disease. I do not know of a disease that disturbs a household more than mastoiditis, and it gives me pleasure to hear of a good scientific man who relieves scientifically, completely and radically diseases of this kind. We have now through Pennsylvania and other States sometimes ten or a hundred industries in a small city, without a hospital; without taking some special interest in our flesh and blood in saving lives and relieving suf-

fering. We have silk mills, tanneries, knitting mills, etc., but no hospital, and it chagrins me when I think of it.

DR. D. M. TRICE: I would like to ask the doctor, don't you think it is advisable to operate, even if you don't have the pus? What makes me speak, I recall a case that came under my observation in New York. The patient had every sign of mastoiditis, swelling behind ear, and intense pain, that could not be relieved by heroic doses of morphia, was finally relieved by local application of leech. The woman got a little better and I took her to New York, and she was seen by Dr. Emerson, Dr. Rosa and Dr. Webster, and they all diagnosed mastoiditis. My friend Dr. Emerson operated on her and we found absolutely no pus, but we got a cure, and I want to ask if she would not have gone on to suppuration, if she had not been operated on. She has had absolutely no more ear trouble since then—eight years—and although we found absolutely no pus, she got immediate relief and has been doing active work ever since.

DR. E. W. CARPENTER, Greenville, S. C.: In reply to that question, Mr. President, I would say that I tried to draw out the points of differentiating mastoid disease from other diseases; sometimes it is very hard and almost impossible by one or two symptoms, but when viewed in the light of all other symptoms carefully analyzed, it is not often that mastoid disease escapes us. The case recited was probably a case where there was chronic congestion of the mucous membrane lining of the mastoid cells, and I think probable suppuration would have occurred in a few days, I do not think we are warranted in saying there was absolutely no pus there then.

I had hoped to present this paper to some men doing

exclusively this work, but I wanted principally to bring it to the general practitioners—men who often have to do mastoid surgery. I have seen a few general surgeons go into the mastoid and they generally drill a hole in the cortex and get down to the region of the antrum, with a large cavity open beneath the bone, and a small orifice externally, it is an absolute impossibility to see where you are working. You cannot see it except through the small opening in the cortex. I think I have seen some cases where the surgeons thought they were in the antrum, but they did not know; they simply were satisfied to enter the cortex and let out the pus. Some say, "Let out the pus, and they get well," but unless you know the anatomy of the bone and systematically enter it, one may get into the sinus unexpectedly, which is rather embarrassing.

THE PRESIDENT: I will ask Dr. Upshur to read the report of the Executive Council. (*See index for report.*)

It was moved and seconded that the report read be adopted, which was done.

Sterilization in House to House Surgery.—Dr. Joseph Price, of Philadelphia, Pa. (*See index for paper.*)

Discussion—DR. H. A. ROYSTER: I wish Dr. Price could have remained behind, because I have a word to say about this paper. I know of Dr. Price's work, and I wish to say, in justice to the science of surgery, that the principles he has laid down are the exception and not the rule. The men whom he has mentioned—Mcdowell, Tait, Sims and others, would have been great anywhere—at the cross-roads or in St. Thomas' Hospital, and the point to emphasize is this: It is the man,

and not the institution; it is the man, and not the country house where he operates. Not only that, it is not the fine appurtenances of the operating room; it is not the money that it takes to buy his material, but it is the amount of brain cells that the surgeon has and the cleanliness of his hands.

So often we see surgeons so careful about their technique; they tell you that their ceiling is sterilized; they tell you that they have on sterilized socks and drink sterilized milk. Everything is sterilized, except their hands. I have seen men perfectly clean, wearing rubber gloves, and these men, performing an operation, put these gloves up to their spectacles and then go into the abdominal cavity.

So, the principles laid down are the same, whether applied in the hovel or in the hospital; and furthermore, the same men who accomplish those results are men that stand out from their fellow men in all ages. I don't know that the men cited would have done any better work in a modern hospital, but they would certainly have done it more comfortably, and they certainly could not have done the amount of work that the modern surgeon accomplishes.

I am not making any plea for institutional work, to the exclusion of house-to-house surgery. I recently operated on a woman seventy-four years old, in her own home, for an appendiceal abscess, with recovery, the operation lasting nine minutes. I am just as willing and as ready to operate in a private house, or in any place where I can get things clean, as I am to operate in the hospital, but who shall say that in the long run patients are as well taken care of as in the hospital?

The doctor is referring to the pioneer hospitals, established by such strong and brilliant men as he mentioned. We cannot get away from this fact, that clean-

liness in surgery is not only next to godliness, *but it is godliness itself*, and that cleanliness is a matter of common sense.

Eleemosenary show, public graft and private vanity have, it is true, equipped many hospitals with unnecessarily expensive apparatus, paying less heed to the principles of surgery than to the precepts of the pocket book. It is the man, and not the place.

Pneumonia—Dr. J. N. Upshur, Richmond. (*See index for paper.*)

Discussion—DR. W. H. COBB: I wish to say that Dr. Upshur fully expressed my views. We often wait too long, until our patient is in *articulo mortis*. His treatment there is the treatment that I adopt and have been carrying out. In children I use the cotton batting and the oil silk jacket. In very small children I have used the cataplasma kaoli, simply on account of the glycerine in it, as it reduces inflammation and draws the serum from the tissues.

I think it is a very timely paper.

DR. J. A. HAYNE, Greenville, S. C.: I cannot help endorsing the paper of Dr. Upshur. I think the therapeutic nihilism of the present day is largely due to the subordination of the chairs of materia medica of the colleges. We spend so much time nowadays hunting up surgeons that they do not get professors who can teach therapeutics, and the modern student is ignorant of materia medica and of therapeutics. As far as the expectant treatment of pneumonia is concerned, the death rate at the large hospitals is about 25 per cent. and private practice 5 to 10 per cent. The hospitals pursue the plan of waiting for the patient to get well or die, while the private practitioner endeavors to assist nature in cur-

ing him. I think there is often a mistake made in differential diagnosis between acute pneumonia and bronchial pneumonia, and that the deaths that are laid at the door of acute lobar pneumonia are often from diagnosis attributed to the wrong disease. The acute lobar pneumonia is a different disease, whereas bronchial pneumonia is mechanical, resulting in the plugging of the bronchial tubes.

I think the use of digitalis in pneumonia is to be condemned. I prefer spartine and caffeine.

I enjoyed the paper very much, and thank the doctor for it.

DR. UPSHUR closes Discussion: I have only a word to say in conclusion. I had hoped to have the paper freely discussed, because it is a fact that pneumonia of the present day is a much discussed question, and men who have entertained ideas of the pathology and causes of pneumonia contrary to the widespread views of bacteriological origin of pneumonia, are considered old fogies, but I have been a doctor long enough to see the development of bacteriology—indeed I am responsible for the establishment of the first chair of bacteriology in the Medical College of Virginia. I think the trouble has been this: That students are taught absolutely along one line, with the idea of everything being due to a different germ. There are some things that may have to run a regular course, yet they may not. It is not my disposition to sit down and do nothing about things. I want to fight, even though the thing gets ready to quit. I believe that we can do a great deal towards curtailing the duration of pneumonia or lessening the length of its time or even the development of it to a later stage. I have seen that over and over again.

It is a curious thing to me in regard to croupous

pneumonia—that you see well defined croupous pneumonia, where it is traceable, or said to be traceable to germs of other kinds. You see it in typhoid fever. I have recently seen a case of double croupous pneumonia, in a case of typhoid fever, and I think it was only intercurrent to an attack of typhoid fever. I believe it is the duty of the doctor to treat the case promptly and to treat it actively and as efficiently as possible, bringing all the power of active remedies to bear on it.

I do not believe in the giving of proprietary remedies or drugs. There is nothing in the way of medicine that I have less confidence in. I don't mean to disparage the manufacturing pharmacists, because many of them make really good things, but as a class they have overstepped their bounds. Recently I saw a "Pneumonia Cure" in the shape of an ointment. It is perfect nonsense. Then there is another fact with regard to that sort of thing: The trouble now in this day is that the works on the practice of medicine, the authors think they have done their duty when they have told you about the history of the disease, its nature, pathology, diagnosis, and they slur over the treatment or give you one absolutely inadequate to meet the demand. I do not understand that sort of teaching. I believe a man to teach medicine could have no better preparation than to have taught for a number of years materia medica and therapeutics, and then when he applies the remedy for relief, to carry along the reason for it, the physiological action of that remedy, and tell the student why he should expect results from it.

In children I use the jacket, cotton batting, oil silk, etc. I believe one reason of the supposed mortality of pneumonia is that there are a great many cases of deaths attributed to pneumonia when there is some-

thing else the patient really died from. For instance an old person, just as the result of failing vitality, dies as the result of the feeble heart action. Probably that heart action may be due to myocarditis. That patient dies, according to the doctor, because of hypostatic pneumonia, and the doctor fills out a certificate, "Death due to pneumonia."

So in regard to other forms of pneumonia. The patient perhaps has Bright's disease. The lungs, towards the latter part of the disease, fill up, and there is a localized condition there, which he puts down as pneumonia, instead of Bright's disease.

Paper on "Practical Helps to An Early Diagnosis," read by Dr. E. T. Dickinson, Wilson, N. C. (*See index for paper.*)

DR. UPSHUR: Mr. President, I want to say something about this important subject. I don't think this question of lack of diagnosis or superficial diagnosis is traceable simply to the country doctor. On the other hand, I think a great many of the country doctors are very painstaking, and that with the facilities they have, they employ them for making correct diagnoses. I think a great many men who are practicing medicine in town, who have facilities for getting a diagnosis may, by microscopic examination, by chemical test of the contents of the kidneys, or, in the examinations for appendicitis, X-ray, or something of that sort, may make the diagnosis, and they do not avail themselves of these things. A great many physicians think that the paramount thing is to get pay for the visit and if the patient dies, he can't help it, and if he gets well, so much the better for the doctor. The trouble is, superficiality in work. They do not have enough regard for their own

reputation to go at what they are doing in the manner of making a diagnosis systematically enough, interrogating every part of the body, and they content themselves with an intuitive examination. He walks in the room and looks at the patient and overlooks other things over and over again.

I have been very much struck recently with the necessity of going to the root of the matter with a case of mine—a lady suffering from headache. I knew that this lady had had a great deal of uterine trouble and I had investigated her very carefully, so that when I found her with headache I knew it was reflex headache, and it was traceable to something she had done to precipitate the attack. When she came into my hands several years ago, she had been attended by her family physician since she was a girl and he simply told her she had to stand the headache, and he was afraid to give her morphine, as it might result in brain affection. He said there was nothing the matter with the uterus, etc. She came to me and I gave her a very critical examination, examined the uterine cavity very carefully and found she had a granular endometritis of the uterus—that woman was given chloroform and a curettage was made and she was cured, and in eight years she has never had a headache, unless she has done something to bring it on. The last headache she had she went to town and left off her flannel underskirt and took cold. It interfered with the period and I found a little tarry drop of blood coming from the uterus. I washed it off thoroughly and applied to the neck of the uterus and vaginal neck, tincture of iodine, and within an hour all the tenderness about the abdomen was entirely relieved and the headache disappeared and she has not had a return of the headache since, and the return of the period has been normal.

DR. HARNSBERGER: The doctor said something about intuitive diagnosis—that they were always inexcusable, or something of the kind. My experience has been that if a physician will make it a rule to examine every patient, whether for a grave disease or not, that he will get that knowledge of disease that he cannot get in any other way and he cannot explain to any one why it is. If he will make it a rule to examine every case that he comes across, he will find that often he will make an intuitive diagnosis, from the simple fact that there are no marks or characteristics under heaven to denote to one what the trouble is, and it is my experience that intuitive diagnoses always are as perfect, if we will judge by results of treatment, etc., as the mediate diagnoses. We have not the “distinctive marks or characteristics,” but I have found that the intuitive diagnosis is, as a rule, just as perfect in results and as beneficial to the patient as the mediate diagnosis. Of course I could give, if we had the time and would take the time, many examples of it, but that is not necessary.

DR. A. B. KNOWLTON: Mr. President, I have heard so many able papers, and so many discussions, and have been so much entertained by the recital of cases and so on, that would appear to be so much more important than this subject, that we might ignore diagnoses; but I think that nothing is more important than to find out what is the matter with the patient. I am sure, Mr. President, that you, as well as every one who has cases similar to them in the cities, have observed this fact: Patients so often are brought to you with letters saying something like this:

“Dear Doctor—I send you this case, and would be much obliged if you would make a diagnosis,” etc.

Now, when these cases come, we cannot help but feel

that the physician has been negligent, because, as soon as we put our hand upon the abdomen, or listen to the heart, or look through a slide or something of the kind, we find some simple little thing gives us a clue to the situation, which should have been done at home. Not only that, but so often it would have saved the patient the expense of coming to the city.

I do think when we get them to the hospitals we get better nurses, etc., but I think the first man who handles the case should make the diagnosis; and how much credit it would reflect upon the doctor when he sends his cases abroad to say: "Dear Doctor—I send you so-and-so." When we come across those cases, the doctor is raised a thousand per cent. in our estimation. When we get a letter of the other kind, he loses caste. I think a microscope should be in every physician's office. Intuitive diagnoses I think are very poor things. Systematic diagnoses, by means of the microscope and every possible adjunct that will make a thorough diagnosis, and every possible adjunct that will make a thorough diagnosis, is the only thing.

DR. DICKINSON closes Discussion: I find, as a general thing through the country, an opposition to physicians treating their patients at home—that is, those men inclined to do hospital or institutional work oppose the general practitioner. They think if the general practitioner does his work at home—if he gets up more of an ambition to do his work at home—there will be some trouble in filling the hospital. I consider Dr. Price's advice on this point very wise. I am sure the reason that the hospitals that we have through the country are not filled, and the reason that we have not other hospitals in every town of two or three thousand inhabitants, is the fact that practitioners generally haven't the

proper ambition along this line, and consequently do not make diagnoses. They have the ability to make diagnoses, but they do not go through with the routine of making the diagnosis. As soon as you see a doctor or two trying to launch a hospital, and get in the position of Uncle Remus' rabbit, where "He is just obleeged to fill it," they go out and make diagnoses a-plenty—enough to fill the hospital out of their own practice, and sustain it almost alone for quite a long while. I feel very enthusiastic on the subject of the general practitioner making diagnoses, and doing as much more as he can surgically, and in every way. The more surgery he does at home, the more possibility will he see for surgery, and the more cases will the specialist get into his hands, especially the more desirable cases.

Paper of Dr. E. C. Register on "Treatment of Puerperal Eclampsia," read by title. (*See index for paper.*)

Insanity, and Hospitals for the Insane—Dr. Robert J. Preston, Marion, Va.

Discussion—DR. TRICE, Moore's Brook Sanitarium, Charlottesville, Va.: Mr. President: I want to emphasize one or two things the doctor has read in his most excellent paper. The first is, the insufficient teaching we have in our colleges along our special line of work. I hope they have improved somewhat in this respect since my college days.

When I entered this special line of work, after three years of private and general practice, I could tell a case of violent mania and that was all I did know as regards insanity. As the doctor says, as a general rule these cases come to the general practitioner before they reach the hands of the specialist, because the specialist

is debarred from seeing them until submitted to him from other sources, generally from other physicians. We have got to depend upon the decisions of the general practitioner for making our commitments, and I think it ought to be urged by every one that we have better teaching in our medical schools along this line before their men graduate.

How often we get those cases of violent mania and profound melancholia that given proper treatment and the alimentary canal thoroughly cleared out, they recover without any further trouble.

Two such cases have come under my care during the past year—men who had been leading sedentary lives and neglecting the natural functions. One of them was so violent that he jumped into the middle of an ice pond before the attendant could restrain him.

The other one—I was unfortunately ill when he came to me, and he went on without the attention he should have had for a day or two. When I recovered I found him violent, with high temperature and what looked to be a very obscure condition, but I examined him and gave him a thorough flushing by means of the high enema, bringing away a most offensive mass which was being reabsorbed.

The improvement was immediate and in three months he was completely cured. I think if we had thorough teaching in our medical colleges we would not see so many of these cases. The private practitioner would recognize them and relieve them at home. I recall one case of "acute confusional" insanity. A young man was taken up on the streets of New York and sent to a general hospital and was left there absolutely without treatment or restraint, so far as I could learn, for three days. At the end of that time he was sent to a private sanatorium at which I was employed. I found him so

hoarse from incessant talking and singing, that it was almost impossible to distinguish a word he said. So bad was the case that on the way to the depot we were followed by a crowd of small boys. The passengers on the boat crowded around to see the patient. He was so violent on the train that he pushed my attendant through the window glass, endeavoring to escape, and it was all that he and I could do to restrain him. I got him to the institution and found that he had eaten nothing for about three days. He had been shamefully neglected. Neither his bladder nor bowels had been attended to. I fed him thoroughly and gave a hypnotic, all of which had to be done by means of a nasal tube, as he could not be induced to eat. I also catheterized him and cleaned out the ailmentary tract thoroughly by means of the high enema. In three days he was well and there has been no return. I claim that he could have been treated just as well at home, had his real condition been recognized and proper treatment given. One point I wish to lay particular stress on is the early recognition of these cases by the general practitioner, and having instigated proper treatment and failing to effect a cure, that he should urge upon the patient's friends the importance of prompt commitment to some good institution for the care and treatment of such cases. Another duty that the general practitioner owes his clientele is to educate them to the fact that insanity is an illness, and that no disgrace is attached to it, and when their people cannot afford treatment in a private institution, the patient should be sent to a public hospital and given the benefit of the best treatment available as soon as possible. Every day that they go without treatment (and I know that the Doctor will bear me out in this), the less chance they have for recovery.

I want to say that of course while a patient can get

many privileges in a private institution, that a state institution cannot give them, still, in one respect, the state institutions have one great advantage, namely: occupation of a useful kind. The hardest thing I have to do is to find some useful occupation for my patients. I can find amusement around the pool table, cards, etc., but I cannot find work. The reasons are obvious. The patients come and pay a good rate and their people cannot see that it necessary for them to work, and even when the friends raise no objections it is hard to induce people of the class generally treated in private institutions to work. The Doctor has squads of seven or eight patients trained to work and a couple of attendants can watch them. When a new patient goes out with them he sees others working and naturally falls into line. In this respect the state institutions are ahead of private hospitals.

These cases ought to have proper initial treatment at home. Under such treatment many of them will clear up, but if not, the sooner they can be gotten under proper treatment, the better chance for their recovery.

All of my work, until I opened an institution in Virginia two years ago, has been in Wisconsin and New York. I have been struck with our laws in the South in regard to the commitment of the insane, and also with the politics connected with our care of the insane. I think if we Doctors will combine and go straight to our respective legislatures we will get better laws and take this out of politics.

I would like to give a little resume of the laws as regards commitments in Virginia and New York. I do not know how they are in this State. In our State (Virginia), a patient has to be examined by two physicians and one magistrate. In New York the application has to be made by a relative or friend, and their statement

signature verified by a notary. Two physicians, who must be qualified examiners in lunacy (and so registered with the Lunacy Commission), must then examine the patient separately, and their statement and signatures must be sworn to before a notary. Within ten days after their signatures are affixed the commitment must be signed by a judge of a court, not less than a court of records, which I suppose would correspond to our circuit court. It is optional with said judge whether the patient be brought into court. If the two physicians examining him think that it would excite the patient to be brought into court, the judge rarely has it done. Within five days after the judge has signed said paper the patient must be in an institution, public or private, or else all the proceedings are void. This to prevent a patient being committed after recovery.

I had a case some time ago where a patient was left in my care for several months and then sent to a state institution. In this instance it was right for him to be sent, but you can readily see how abuse might come under such a law. I think we will get better laws on this subject when the general practitioners go before the legislature and demand better laws, and that this branch of our profession be taken out of politics. As you readily see, when a specialist, either the superintendent of a private or public hospital, goes before a legislature, it is thought he has an axe to grind, but if the general practitioner goes, they will get the laws we need. We have made great strides within the past twelve years, but in my opinion, this matter should be under civil service. Every state hospital in the same state should be equal—equal as to salaries, etc., for the same grade of service.

DR. CROWN TORRENCE, Union, S. C.: This is a disease that I think probably possesses the greatest im-

portance, from a personal and pathological standpoint, than any disease we come in contact with—mental trouble; and the great horror our people have in regard to the treatment of mental diseases is that they have to come before some county officer and serve certain papers, in order to get into the hospitals which the State provides for the treatment of them. I think that is right. I think that is a legitimate way for them to get into these places; it has to be done, but it places a stamp upon this trouble and it places a stamp upon the family of the patient who goes through that; a great many of them object to it very seriously.

In our State of South Carolina it is pretty hard to get even an ordinary crazy man into an "asylum," as we call it down here, and it is a bad name. I have thought of it several times. I don't think it is a good name. The point that I was going to try to bring out is that this person has to come up before some county officer, entirely disconnected, we might say, with the medical side of the question, and he gets, I think, five dollars for writing out one of these blanks committing a person to this institution, and he appoints a physician or a couple of physicians to pass on it, and if they agree with him, why it goes through and he gets his five dollars. I don't mean to say he is criminal in doing that, because it is necessary, but I only want to bring out the side of the thing that if the physician investigated it, how these poor, defenceless creatures could be taken care of by the State, which has to take care of them.

DR. EPTING: I think the Doctor is a little mistaken about the commitment in this State. Any one interested in a patient makes application to the judge of the Probate Court and he makes application to the president of the hospital for the insane and if he ac-

cepts it he sends it back, and the judge of probate appoints two physicians to examine them separately, and on their testimony that he is a subject for the hospital, he is committed.

DR. HARNSBERGER, Catlett, Va.: I was raised in the County of Augusta, the home of the Western State Hospital for the Insane, and while I have seen hundreds of that kind of cases, I must confess, as a general practitioner, when called in to examine a case of lunacy, I have never been satisfied in my own mind, on the superficial examination that we have to give, to state whether the patient is sane or insane, and I don't see how any physician, no matter how well qualified he may be in other respects in medicine, can take a patient he has never seen, examine that patient and state in the few minutes time whether he is sane or not. We used to have three magistrates in Virginia and one physician; it is now one magistrate and two physicians. Dr. Preston, of the College of Physicians and Surgeons, Baltimore, said that on one occasion he was called to see a young lady of prominent family. There was something wrong with her and her family concluded that she was insane. She was very entertaining and I imagine he had no objection to calling on her often. He visited her at least once a week and probably twice a week, and it took six months before he could detect any trouble at all. He had visited her on this special occasion and while he was talking to her she said: "Look at those people there on the street watching me." When he looked in the street he found there was no one there at all and he detected this trouble on that occasion.

Now, when you take that as an example, you see how difficult it is to detect sanity from insanity. It took six

months' time before he could determine this special trouble and say whether she was sane or insane.

Not long ago I was called in to see a man. He purchased a horse that cost a thousand dollars. The groom was ordered to ride this horse down the railroad and to cross a bridge, in my section. The horse was insured for eight thousand dollars. The object of this man was to place the horse on the bridge, in the hope that he would be killed by the passing train and that he would recover damages for the horse. The trial came up and the family saw that the man would probably be sent to the penitentiary, unless he was adjudged insane. They had the magistrate's trial and the brother of the man and others went on to explain about the case—that he was certainly insane, because he tried to kill his wife and tried to burn his house, and that he destroyed a new buggy, worth several hundred dollars, etc. I inquired whether the man did this when drunk or sober. They said when drunk. I inquired of the wife when he did these things and she said when he was under the influence of whiskey, and I could not give a certificate that he was insane. Anyhow, I gave the certificate that he was not insane, and lost a large medical bill by doing so. I practiced for the man's family.

DR. PRESTON, closes discussion: Mr. President and Gentlemen: In response to a remark made by Dr. Trice, I want to state that for several years, in my own State, I have been endeavoring to bring this matter more thoroughly before the general profession, not so much as to the commitment as to the opportunity and privileges which they have in correcting the premonitory symptoms and the hereditary symptoms, which come before the general practitioner more than any thing else, and as heredity is the cause of the great

majority of our insanity, the general practitioner can, in that way, by attention to correcting of those neurotic tendencies in the parents and in the children, do a great deal towards preventing so much insanity in our land.

I think in our own State and in North Carolina (I don't know so well about South Carolina), there have been great improvements in the laws of late. It used to be in Virginia three magistrates constituted a commission of lunacy, and it was not necessary to have a physician, although they usually would summon one physician to testify in the cases. Now it is required an examination by two competent physicians and then the justice or the judge of the court orders that patient to the hospital of the insane. In New York I think two physicians are required, and they are required to examine the patients separately and certify to their examination, and then the judge of the probate court, or some one, orders them to the hospital.

There is, I think, a great need for bringing this subject before the general profession and for the general profession to consider these things, as it is one of the greatest taxes on the body politic, and it is increasing year by year—insanity—in all our States, and the general practitioner, by attending as family physician, can do an immense amount of good in warding off these neurotic tendencies, which will keep a great many out of the hospitals for the insane.

Paper presented by title by Dr. J. Howell Way, on "Liability to Tuberculosis in Health Resorts." (*See index for paper.*)

Dr. Hays and Dr. Trice were appointed to escort the President to the chair.

DR. ROYSTER: I do not know when I have had greater pleasure or greater honor than in introducing as my successor one who has served us faithfully in another

office in this Association for several years. He has been my co-worker and my friend, and I do not know one to whom I would more gladly turn over the gavel, than to Dr. Rolfe E. Hughes, of Laurens, S. C.

The new President will now take the chair, make an eloquent speech and adjourn the meeting.

DR. HUGHES: Mr. President, I thank you for your kind expressions, Sir. It is certainly very gratifying to hear this and especially so that my labors are rewarded by such an honor as your Presiding Officer. I wish I could make an *eloquent* speech, but we have been in session two days. The crowd is weary and I will spare *you* this time.

It suggests a little squibb I recently saw. It seems a long winded old preacher had worn out his audience by an account of several books in the Bible. For instance he took up First Samuel—dwelling some time on that, then Second Samuel. “Where now is Second Samuel’s place,” then other books were taken up, each time asking the question where is this or that book’s place. Finally he came to Jeremiah and he said: “Now we come to Jeremiah—Where is Jeremiah’s place?” The crowd as a whole was weary, but it was too much for an unkempt mountaineer back in the audience who arose and said—“Parson, Jeremiah can have my place for I’m going home.”

I thank you though, gentlemen, for this high honor and I shall hope to prove by my labors how I appreciate it. I trust you have not made a mistake and if you have, I will do all in my power to correct it.

I thank you all.

It was moved and second that the meeting adjourn *sine die*.

Norfolk, Virginia was selected as next place of meeting.

TYPES OF MODERN DOCTORS

*President's Address, Tri-State Medical Association of
the Carolinas and Virginia, February,
27-28, 1906.*

By H. A. ROYSTER, B. A., M. D., Raleigh, N. C.

After nature deliberation, I have decided to depart from the form of presidential address usually delivered to medical societies. My distinguished predecessors in their turns (as is the custom) expressed wise opinions and made helpful suggestions and recommendations for the good of this Association. I do not feel myself competent to follow in their footsteps and shall not essay such a task. My course is, therefore, made plain. Happily, there is no present need for advice concerning the conduct and well-being of this organization. The Tri-State Medical Association of the Carolinas and Virginia has firmly established itself; it has proved its reason for existing and it will continue to grow and prosper. If at first there was some show of opposition and indifference, it has long since quietly deliquesced and evaporated. There can be no question as to the demand for such societies as this, meeting, as it does, in the interval between the sessions of the respective State Associations and bringing together for mutual benefit "those of like faith and order."

For sufficient reasons, then, I hope you will pardon me for making a departure from the traditional usage and refraining from even a slightest reference to the machinery of our organization. You will also bear with me, I beg, while I present to you the subject which I have chosen for this occasion, viz: "Types of Mod-

ern Doctors." My purpose is to ask your attention to a brief description of various kinds of physicians which we commonly see, to review their characteristics and learn lessons from them.

It has often occurred to me that perhaps we do not submit ourselves, as frequently as we ought to to a thorough self-examination. Many of us would at times certainly fail to pass. Rigid self-inspection is the surest method of keeping sound whether in theology or in medicine, and it can but be to our advantage to overhaul ourselves now and then and find out what we really are. Every human being has some dominant characteristic, moral or mental, which controls him. Beyond the influence of this he may not, or does not, go. Sets of men may be grouped together, representing these individual attributes. In like manner, I take it, members of the medical profession can be classified according to the motives and forces which control them, so that in regard to any physician one might justly say: What kind of doctor is he? What does he stand for? What is he striving to attain? From a large number that naturally suggest themselves, I have picked out a few types of medical men, which I shall present, not, as it may appear, in a spirit of cynical criticism, but with a loyal desire to bring out the truthful picture. Some of the qualities to be discussed, while apparently objectionable, are traits of a fine character and it is only when they constitute the controlling element that they become unworthy and unlovely.

1. THE POLITICAL DOCTOR.—At all times and in all places men must meet and decide public problems. Each individual has his proportion of responsibility. The man of medicine is no exception to this statement, for he holds a peculiarly important position with regard to

the people. Indeed, I have always maintained that the doctor's place is, in a broad way, to educate and to enlighten, and, that he largely neglects this obligation. Not often do physicians receive that public recognition to which their honorable services entitle them. And this is due largely to the faults of the physicians themselves, who so frequently fail to preform their civic functions. Every member of the medical profession should strive every day to make himself a better doctor; it is also his duty to be a good citizen. That means being interested in and working everything that tends toward the moral, social or commercial upbuilding of his community. It is a part of the physician's role in life to be of, as well as in, the body politic, to be useful as a man and to take his share of responsibility in public relations. No class in any community is more honorable, more intelligent, more upright, more respected than the doctors. Let them always exercise their great influence wisely and well.

To attain such beneficent ends many physicians have entered the field of practical politics. There is room for such men, sacrificing much for the good of their fellows. This is their way of life and it is as worthy as the special duties of their vocation, as honorable as it is legitimate. The political bee, however, may buzz too long and loud for some and thence may come their undoing. Only upon the conviction that he has a high public commission to perform, is the physician justified in going the political paces. Osler, indeed, deprecates the immolation of good men in this way and says: "Politics has been the ruin of many country doctors, and often of the very best, of just such a good fellow of whom I have been speaking. He is popular; he has a little money; and he, if anybody, can save the seat for the party! When the committee leaves you, take the

offer under consideration, and if in the ten or twelve years you have kept on intimate terms with those friends of your student days, Montaigne and Plutarch, you will know what answer to return." But the doctor in politics is one thing and politics in the doctor in another. The one is all right; the other is all wrong. No character is more reprehensible than the medical politician, meaning the doctor who employs the tricks of the ward heeler's trade in his professional career.

A taste for this sort of thing, once formed, grows and develops into a fixed habit, or a passion. Your type of this class is the one who makes friends merely for what they can do for him; who, possessing neither merit nor ability strives to attain his ends by "pull"; who is "all things to all men that some might" vote for him; who applies for all positions of preferment in sight and gains and holds them by putting the men in power under obligations to him through personal favors; who, if he is interested in medical societies, becomes a candidate for each office in turn and endeavors always to create a machine and fix up the slate for his own glory and to use such organizations for the sole purpose of advertising himself. What marvellous prowess gone wrong! What great force prostituted to ignoble fulfillment! If one could only corner such a man, and reform him, that is, literally make him over, and get the twist out of his moral fibre, this would be a happier world and the good, instead of the wicked, would flourish as the green bay tree.

2. THE BUSINESS DOCTOR.—Of a part with the foregoing and inevitably linked together with it, is this second type; for politics is a business and business is frequently a matter of politics. Here, too, the true and the false are interwoven. "The Doctor as a Business

Man'' has served as a title for multitudinous discourses before societies and in the journals and no one can doubt the necessity of calling more and more attention to this subject. The great majority of physicians everywhere are neglectful of their financial interests. If we are to keep abreast of the progress of medical science and give our patients the most efficient service, it behooves us to inject into our work systematic business methods, which should be conducted on a plane as high as our ethical standards of deportment.

Further, I assert that the physician is doing wrong to himself, to his brothers in the profession and to the public, when he fails to collect his accounts promptly, and to demand of his patrons full but reasonable payment for service rendered. "The laborer is worthy of his hire."

But there is another aspect to this question. A virtue run to seed may constitute a vice. The word "business" has come to have a sinister meaning, expressing the intention to get all you can at any cost, and often one of the last things said of a person is that he is a good "business man." When such phrases are employed in reference to a physician, they appear as an effort to account for an apparently successful career on other than professional grounds. Sordid commercialism has no place in this profession of ours. The doctor first, then the dollar; medicine before money.

I have before me the picture of a man who is a competent and faithful physician; who serves incessantly night and day a large and increasing *clientele*; who, as the world sees it, is a most successful doctor. Yet, that man breathes and lives in an atmosphere of money; he measures everything on a financial plan; he is miserable each night when he has not cleared a good per cent. of gain on the day's work and is correspondingly elated,

if the reverse is true. This individual represents a degeneration. Prosperity has been disastrous to the scientific side of his life; he has time neither for reflection, study nor growth. The desire for money has been not of his life a part, but his whole existence. What could this doctor not achieve if he should turn that stream of commercial capacity, that tremendous tide of physical and mental energy solely into actual medical channels? If science instead of shekels ruled the lives of such men, there would be more fame and less fraud in our ranks.

Let us, therefore, strongly urge that the physician shall carry business principles into his profession; let us just as ardently contend that he should not make a business of his profession. Leaving out all your sentiment, medicine is not a trade. Some, who are infected with the commercial taint of our age, are inclined to wink at these tightly drawn lines. I do not know how I could better close this paragraph than by quoting from a layman, President Faunce, of Brown University, who, in an address before the Rhode Island Medical Society, puts these distinctions in an admirable way. He says: "In two respects the medical profession deserves the grateful recognition and regard of all other callings in modern life. It has always insisted that the practice of medicine is a profession and not a trade. Trade is occupation for livelihood; profession is occupation for the service of the world. Trade is occupation for joy of the result; profession is occupation for joy in the process. Trade is occupation where anybody may enter; profession is occupation where only those who are prepared may enter. Trade is occupation taken up temporarily, until something better offers; profession is occupation with which one is identified for life. Trade makes one the rival of every other

trader; profession makes one the co-operator with all his colleagues: Trade knows only the ethics of success; profession is bound by lasting ties of sacred honor."

3. THE SOCIAL DOCTOR.—Constituting a less distinctive species and perhaps more perplexing to classify, the third type of our series will offer greater difficulties for our consideration. I have called it the "Social Doctor," but I do so for want of a better name, since that term does not precisely convey the meaning. It is a well known fact that our profession stands always for those things which go to uplift the tone of the community. Physicians are always found on the side of humanity, good government, progress. While the mere study and practice of medicine do not carry with them the *entree* to high social position, yet the tendencies of the medical life are to elevate the standards of its devotees and to refine those who faithfully follow its precepts. Inspiration toward correct principles of living comes as a natural result. It is expected at all times that the doctor shall be sociable, agreeable, and companionable. More than this, he is even privileged to go out of his way to make friends for the benevolent purpose of combating ignorance. Overlooking the foibles of fools and showing fellow men the right road are only different attitudes of friendliness. Highly commendable are efforts to reach out for and to associate with people of all classes and conditions, for thereby is accomplished the greatest good to the greatest number, and, if a humane sympathy pervade such endeavors, nothing short of a divine impulse could be more desirable.

Yet making friends is sometimes a dangerous business. One may wake up some fine morning and discover that not all who appeared friendly have the

stamp of the genuine article. To the physician, especially, there may come embarrassment and disillusion, unless he be grounded in the faith; for you have found out that your best friends will desert you on the merest whim, while your enemies will seek your skill when they want it. The only reasons for the existence of any doctor are for what he knows and for what he can do with his knowledge. But the laity rarely judge correctly of a physician's attainments and hence arise the credulity games often practiced under the guise of friendship. A sound principle is to make friends of your patients, but not patients of your friends.

In a recent letter, Robert T. Morris thus expresses a somewhat similar thought: "Today some of us do not care whether we part as friends or as enemies, so long as we get the patient well. We are interested in the physiology rather than in the psychology of our patients. There is gratitude and friendliness of the right sort, and we all enjoy it. There is so much gratitude and friendliness that is morbid, or that has a sting to it, that a good healthy kick is more healthful and refreshing. Is there a doctor who will deny this statement?"

Why should a man, who is your friend, consult you, because of that friendship, unless he believes you capable and honest? Would you or could you do more for him than for any other human being, who sought your advice? If so, then you are not worthy of his confidence, and do not measure up to his estimate of you. There are too many false standards to be set up here and those who demand patronage for social reasons alone will be constantly squirming to extricate themselves from the hot and muddy water of a confused responsibility.

There is a spurious type of the class under discus-

sion, viz.: the so-called "society" doctor. He is peculiarly culpable in that he represents all that is cheap and unattractive in a physician's life, many times to the utter stifling of real ability. He is a product of environment, however, and is a bright example of how patients ruin good doctors as well as how doctors spoil their patients. The "boudoir" kind, a variety of this type, is an equal offender, but is really harmless, being equipped with nothing beyond a polite address and aromatic spirits of ammonia.

4. THE "NEAR"-QUACK DOCTOR.—Under this heading there looms up the vision of three common types which are appropriately considered together. Examples of this sort assume, whether unconsciously or not, the ways of the charlatan, and thus bring reproach upon the profession. The laity soon recognize the methods practiced by such men; and while some people are pleased and flattered, the majority in the long run become disgusted with them. Wholesale and irrational criticism is not to be heaped upon those who are inclined to indulge in these faults, for they gradually fall into them, and, for the most part, are unaware of the decadence.

The first of these types is (a) *The Alarmist*. He is ubiquitous. He is the one who finds in every follicular tonsillitis a case of diphtheria; who denominates as appendicitis each attack of pain in the abdomen, and who pronounces every sore throat and cough as tuberculosis. All of which would be very well (for it is the doctor's business to be on guard and watch for the worst), if the alarmists did not take undue credit to themselves for curing what never existed and pose as doing things which others could not do. One is constantly uncertain

whether to attribute practices of this kind to ignorance or to charlatanism.

Favorite fashions are these: To say that each case of a certain disease is the severest ever known—and some doctors' patients are always at the point of death till *their* medicine has put in its work; to tell patient after patient that they have "heart trouble," "kidney trouble," or "liver trouble," when there is no organic affection of these organs—in fact when no diagnosis whatever is made; to assert positively, when there is a successful result, that, if he had not been sent for sooner, the patient would surely have died, or, in the event of a fatal issue that he should have been called sooner. The fascinating habit of exaggeration is the underlying cause and the only remedy is that we shall be eternally honest with ourselves, no matter how necessary it may seem to deceive our patients. Far be it from me to discredit the sounding of an alarm, when danger is present; perhaps it were better thus than to fail to suspect approaching peril. But let us have the unalloyed substance and not a counterfeit; let us not, even once, cry "wolf" when there *is* no wolf.

Running a close second to the alarmist is the type which I have elected to dub (b) *The Enthusiast*. By this is implied the physician who is an exponent, not of the natural, but of the artificial, kind of enthusiasm—trumped up for the occasion, running off at a tangent, unbridled. It is harmful in the extreme to doctor and to patient, strictly opposed to scientific principles and often savors of the nostrum vendors who extol their wares as cure-alls on insufficient evidence. The calm enthusiasm of the seeker after knowledge, is one of the most excellent qualities with which the physician can be endowed. The energy that directs one to learn for learning's sake is commendable beyond emphasis and

the zeal which irresistibly carries one onward and upward in exercising all one's attainments is admirable. Such guiding attributes enable their possessor to truly appreciate the beauties of the medical life both in its theory and in its practice. Every now and then, however, are found specimens of misdirected enthusiasm—the sort that vitiates. Even good men, solid and capable doctors, are not seldom drawn into careless ways by the *post-hoc-ergo-propter-hoc* habit and by running wild over certain modes of treatment which in their hands have been valuable. The ordinary enthusiast, as I have seen him, exhibits a profound, overweening belief in the power of himself and his remedial agents; he is ready to pick up any new suggestion and cry it to the skies as the “finest thing out,” only to drop it and go to another newer one on the slightest pretext; he puts every measure to one test, the empirical, always neglects the personal equation and never for an instant credits the healing force of nature. The worst feature, whether in research and theory or in the realm of therapeutics, is to be dominated by an idea so that it gains hold of the innermost judgment and absolutely sways the being. The open mind and the golden mean are here the laws of action and this motto should pilot us:

“Be not the first by whom the new is tried
Nor yet the last to lay the old aside.”

A real flavor of the quack is seen in our third subdivision, viz.: (c) *The “All 'Round Specialist.”* He it is who combines the worst elements of all other types. It has recently come to be a fad—this all 'round specialism—and some, who would scorn the thought of being a general practitioner, are pretending to be experts in several branches of the medical art,—nose and throat,

internal medicine, gynecology, etc. There could be but one reason for such assumption and that is the longing for larger revenue. By no process of deduction can it be shown that this pretension enables a physician to be of greater service to the community or fits him better to perform the duties of his profession. The general practitioner is the keystone of the medical arch, for it is his strength and support which maintain all the workers in the field. Of what use are specialists unless the practitioner knows when they are needed? And how could patients get the benefit from consultations unless referred by their own physicians? So, it is but a truism to state that the practitioner must possess a wide range of knowledge, which is required to be spread out thinly over large areas, and that he must compass within his jurisdiction something about "all the ills that flesh is heir to." There is no more crying need today than the presence in larger numbers of such good men and true in our small towns and country districts. Places are waiting for them to fill, and so fast, indeed, has been the rush towards specializing, that the general practitioner finds himself now to be really a specialist. But in this evolution he is bound by the laws governing the so-called specialties and he is not, without injury to himself and to others, to over-step his limitation. Further we cannot afford to tarnish his record and spoil his honest work by seeming rather than being. Should a practitioner have a special liking for one particular branch of the profession, he may properly develop it to immense advantage, but this is no call to leave the fundamentals and raise deceptive flags on the ramparts. Actually, this taint is getting into the literature and publishing houses are sending out books for the "All 'round specialist." The very phrase is an abomination

and its spirit a sham. One who ventures to claim this prerogative, might be admonished in the words of the song:

“When pie is passed by fate,
Not to trouble invite
By taking a bite
You cannot masticate.”

5. THE BUSY DOCTOR.—It has been facetiously said that a young physician should always appear to be doing something, especially when he is doing nothing. The ambition to be a “busy doctor” has handicapped many a man at the outset of the race. A young doctor with this notion plunges in and soon is so busy making a living that he has no time for reading or reflection, for progress or production, with the result that after some years he finds himself prospering materially but retrograding professionally. Instead of counting the number of daily visits made and ascertaining the net income from each, it would be infinitely more edifying to record notes of the various cases and to apply this experience to others which may afterwards appear.

The “busy doctor” in his most pitiable form is illustrated by the one who has become so engrossed in his “business” that he knows but one book, lives in but one town and uses but one set of prescriptions. Such a man may be supremely happy and eminently faithful; but how can he justify this veritable neglect of his patrons? He is, forsooth, so assiduous in attending to sick people that he has no opportunity to learn how to do it better, to compare his work with others or to change his ideas of treatment. How busy—and how narrow! The value of the medical society in curing such complaints is far reaching. And especialy is this true of asso-

ciations like this one, where doctors from different though allied states come together annually, to discuss problems growing out of their own work.

6. THE SYMPTOM DOCTOR.—The sad state of the “symptom doctor” shall have a passing reference, though it deserves a volume. As a general rule, more mistakes in medical practice are made from carelessness than from ignorance. The failure to examine their patients is the most flagrant fault of doctors. But the physician who habitually and exclusively treats symptoms pleads guilty to both sins, for he is careless in observation and ignorant of pathology. And after all, the chiefest difference between doctors is in the amount of pathology they know. Pathology is the heart of the medical body; omitting that, one has not mastered the science of medicine. On this very rock occurs the largest number of wrecks from which emerge the symptom doctors. It is perfectly understood that we have all occasions to treat symptoms and to relieve suffering, wherever found; we are even compelled many times to do this and nothing else in cases of obscure etiology. Yet the sane and careful physician endeavors to ferret out the causes and to study the pathological changes as the only rational basis of treatment. Not so with the so-called symptom doctor. He is not pestered by matters of etiology, pathology or diagnosis; physical signs to him are unknown quantities and symptoms not the surface markings of disease, but merely things for which he can write another prescription.

I have heard a physician boast that it was of no use to make a diagnosis, that most patients would get well any way, and that by relieving symptoms and “assisting nature” he obtained results as good as those of

others. If he would only stop at "assisting nature" and do nothing more! A hopeless undertaking it would be to initiate this man into the inner council of the medical guild. He gives the coal tars for headache and fever, morphine for most other pains, pepsin for indigestion and purgatives when in doubt, and so, at times, do all physicians; but these and other remedial agents are never to be administered without a clear idea of the pathological conditions present or at least a thorough physical exploration of the patient. How many doctors can give a well grounded reason for every dose of their physic taken? There can be no proper treatment without a diagnosis and no diagnosis except through a knowledge of pathology. Pathology is the thing.

7. THE IDEAL DOCTOR.—Finally, I have an ideal for the physician. I would have him a man whose character is fine and strong, for above all it is character that counts; whose intellect is keen, capable of making what is best out of itself; whose judgment places him steadfastly on the unswerving ground of truth and honor, always directing him to seek that which is best and highest, and yet nimble enough to keep him away from unalterable opinions and pet fancies; whose love for his profession is so deep as never for one moment to let him forget her glorious precepts and whose devotion to his science makes him ever a disciple of learning and culture.

Our physician shall be enough of a politician to exercise tact and to be of much account in the world; enough of a business man to collect his bills and save his earnings; social enough to be of the greatest service to all mankind; enough of an alarmist to give warning of real danger; enough of an enthusiast to take the most

alert interest in his work; enough of an all-'round specialist to be prepared for whatever he may meet; busy enough to do his full duty; enough of a symptom doctor to relieve suffering—permanently if he can, temporarily, if he must. Sham and pretense are foreign to the soul of such a man. His feet are set in the path of the open day and his deeds are known and read of all men.

In conclusion the whole matter may be summarized by the following nugget of wisdom from Chesterfield:

“The ambition of a silly fellow will be to have a fine equipage, a fine horse, and fine clothes; things which anybody, that has as much money, may have as well as he; for they are all to be bought; but the ambition of a man of sense and honor is to be distinguished by a character and reputation of knowledge, truth, and virtue—things which are not to be bought, and that can only be acquired by a good head and a good heart.”

PAPERS

Appendicitis.

BY F. L. POTTS, M. D., SPARTANBURG, S. C.

Mr. President and Gentlemen of the Tri-State Medical Association:

I have chosen for my subject the differential diagnosis of appendicitis with the report of one case of mistaken diagnosis.

Inflammation of the appendix is pre-eminently the disease attended with pain and tenderness in the right iliac fossa.

It is generally observed that persons attacked with appendicitis is an adolescent or an adult who enjoys good health but has been afflicted with various functional digestive troubles. Most usually he is seized with a general abdominal pain which soon localizes itself in the right iliac fossa, from this time on several varieties of inflammation may follow, each with a distinctive result, such as acute appendicitis, acute suppurative appendicitis (partial or complete) and chronic appendicitis; these, of course, can be sub-divided into classes almost innumerable and quite as useless as far as diagnosis and treatment are concerned, the symptoms only differing in degree and extent. In any acute involvement of the appendix the symptoms of pain, vomiting, abdominal tenderness, fever, muscular tension of the abdominal wall, with or without constipation or diarrhea, are present to a variable extent, depending on the intensity of the infection and the course of the disease. The onset of the attack is, in the majority of

cases, sudden. This sudden development of the primary symptoms is so characteristic that in diagnosis ordinarily those diseases having a sudden onset are considered. The pain is one of the most important of the cardinal symptoms. It is acute and lancinating and first referred to the epigastric or peri-umbilical region. In a few hours it localizes itself in the right iliac fossa. In only one-fourth of the cases is the pain, at the commencement of the attack referred to the right iliac fossa. Vomiting is a comparatively frequent symptom, it follows the onset of pain and is usually accompanied with nausea. It is very rare for it to precede the pain. It is looked upon as a reflex phenomena and not dependent upon any disturbances of digestion. Abdominal tenderness is present in all cases and is present within six hours of the onset. It corresponds very accurately to the location of the appendix in a general way, and when localized in a small area is called point tenderness (McBurney).

In the very commencement of the attack or where a more or less diffuse tenderness exists in the right iliac fossa with a single point of exquisite tenderness on the external border of the right rectus muscle, in a line from the umbilicus to the anterior superior spine of the ilium, this symptom is one of importance. In the absence of other symptoms to corroborate it, too much importance must not be placed upon this symptom. In other respects the tenderness corresponds quite accurately to the location of the process. Fever is perhaps the most unreliable of all symptoms, it may or may not be present. The pulse also may be little affected, depending on the degree of infection or extent of peritonitis. If peritonitis be present to any extent, muscular tension in the abdominal wall is marked. In chronic appendicitis it is generally not present. In acute cases of lim-

ited peritonitis it is generally present and confined to the right rectus muscle. A tumor is not generally present in the chronic cases, in the acute cases it makes its appearance at the end of the first to the second or sixth day. Believing that the cardinal symptoms of appendicitis are pain, tenderness and muscular rigidity, regardless of the variety of inflammation, and always present to a greater or lesser degree, it seems quite useless to consider the different processes individually.

Chiefly on account of the pain and tenderness, acute appendicitis may be confounded with a number of diseases, prominent among which are colic, bilious colic, renal colic, acute cholecystitis, perforation of the gall-bladder, typhoid fever, ulceration of the lower part of the ilium, obstruction of the bowel, abscess in or around the kidney, floating kidney, inflammation of the right ovary, extra uterine pregnancy, pelvic peritonitis, abscess in the abdominal wall, abscess of the liver, and distension of the caecum. The sudden pain, the acute indigestion, the nausea and vomiting may cause appendicitis, at its beginning, to be mistaken for colic, especially for bilious colic, but the localization of the pain and particularly the tenderness in the right iliac fossa are very different. On the other hand, jaundice, that attends or follows bilious colic, is not a symptom of appendicitis, and the pain does not radiate to the shoulder and scapular. The same localization of tenderness is of value in distinguishing renal colic, where the tenderness, if it exists at all, is most marked over poupart's ligament, moreover rectal and vesical tenesmus and retraction of the testicle, common in renal colic, are very rare in appendicitis.

Pain and tenderness in the right iliac fossa may be the cause of typhoid fever being confounded with appendicitis, but neither pain nor tenderness is great in

typhoid fever, then the characteristic temperature record, the nervous symptoms, the diarrhea, the eruption, furnish striking points of difference. Ulceration of the lower part of the ilium produces pain and tenderness in the iliac region, but combined, as the ulceration generally is, with tubercular disease, the history of the case gives a clue to the nature of the malady.

Another difficult diagnosis is at times that regarding obstruction of the bowels, the more difficult because appendicitis may become a cause of intestinal obstruction. In both there is pain, in both constipation, in both vomiting, but the pain in obstruction is not localized or attended with such a significant seat of tenderness as McBurney's point; the constipation in appendicitis is not so absolute, and flatus passes. The vomiting in this disease occurs early then generally stops; late vomiting is the rule in obstruction and it becomes fecal. Acute intussusception has a different history, and makes its appearance suddenly with such peculiar signs that although it may likewise occasion a tumor in the right iliac region, it can be generally distinguished from appendicitis. Yet, where the latter leads to intestinal obstruction, the diagnosis is not always obvious.

As regards abscess in or around the kidney, the situation of the swelling is not exactly in the ilio-caecal region, or at all events it is not confined to this region, and the urine contains such ingredients as pus, or blood or heavy deposits of urates or phosphates. Moreover there is no intestinal disturbance or marked local tenderness, such as we find in appendicitis.

In floating kidney the mobility of the organ, the slight tenderness, the dyspeptic symptoms and the throbbing of the abdominal aorta are very significant. An inflammation of the right ovary gives rise to pain and

tenderness in the right iliac fossa and to fever, but it is associated with disturbances of the uterine functions, with characteristic ovarian pain, and occasions no perceptible swelling.

Extra uterine pregnancy may be mistaken for acute appendicitis in consequence of sudden rupture of the sac, and I may add right here that this mistake has been made by myself in consultation before the rupture. But the previous history, the great prostration, the excessive thirst, and a pelvic examination will, in the majority of cases, explain the true meaning of the symptoms. Ovarian abscess, pyosalpinx, fibroid tumors, a varicose condition of the veins of the broad ligament and painful menstruation may also be mistaken for appendicitis, but as Dr. Deaver, in an admirable paper, based on extraordinary large experience, shows, none have the exact combination of signs found in appendicitis.

Generally in diseases of the gall-bladder the seat of pain and tenderness is over it, and not in the right iliac fossa, as in appendicitis. But there are exceptions in both affections, rendering the diagnosis very difficult, it may be, impossible. The swelling of a distended gall-bladder may be felt very low down, and on the other hand appendicitis of the upper part may have its local signs in the neighborhood of the gall-bladder. Rigidity of the rectus muscle and pain are common to gall-bladder diseases and to appendicitis. The pain of acute cholecystitis is, however, more violent and so it is as a rule, in perforation of the gall-bladder than in perforated appendicitis, still, how deceptive symptoms may be is proved by the published cases of surgeons like Fowler and like Richardson.

An abscess in the abdominal walls furnishes many signs of abscesses around the appendix. The most trust-

worthy points of distinction are, first, the local evidence of inflammation in wall abscess; second, it moves with abdominal wall and is unassociated with intestinal symptoms. In psoas abscess we have the association with caries of the vertebra, rigidity or an excoriation of the spine, dorsal pain and tenderness.

It is sometimes difficult to distinguish between appendicitis, especially in its chronic form, and abscess of the liver; the more difficult because, as I know by experience, they may co-exist, the hepatic abscess being most likely consequent to the appendicitis. Another fact that makes the diagnosis difficult is that the pain and tenderness in appendicitis do not always exist in the right iliac fossa, but may be found at various parts of the abdomen, the abscess following appendicitis may extend high up towards the liver; in these difficult instances, the history of the case, as well as the study of the sequence in which the phenomena appeared, becomes of the greatest value. A distension of the caecum may be mistaken for chronic appendicitis. It gives rise to fullness in the right iliac fossa, and to pain, often of a colicky character, but not associated with inflammation, tenderness or fever. Purgatives to clear out the faeces which accumulate from want of power of the bowel to propel them, and the dullness on percussion vanishes after free evacuation.

Dr. Leonard has very kindly furnished us with the history of the case that we will report:

SUSIE D., COLORED, AGED 32 YEARS

Past History.—Has had two children, youngest about six years of age; since birth of last child has had two miscarriages, history of gonorrhoea negative, menstruation irregular for past three years. For last six years has suffered repeated attacks of colic, followed by nausea and vomit and was told by one of Spartan-

burg's prominent physicians (now deceased), that she had appendicitis. Has been troubled for years with constipation.

Present Condition.—In February, 1905, was suddenly seized with acute pain in right side, followed by nausea and vomiting, stomach would not retain anything; when called patient had been sick for three days, constipated, pain in right iliac region, tongue coated, pulse 80. Gave calomel and soda of each gr. 5, followed in six hours by saline laxative 2 drms. every two hours until bowels moved freely. Heard nothing from patient until one month later, when I received a hurried call. On my arrival found patient suffering intense pain in right iliac fossa, pulse accelerated, but no temperature. Hyperdermic of morphine given, which was repeated in 30 minutes, calomel and soda tablets ordered every half hour, still on second day no bowel movement had been secured. Abdomen so tender that I could not palpate, but on inspection could easily make out tumor-like mass in right iliac region; bowels having not yet moved ordered castor oil, which moved bowels freely in two hours. An operation was advised, believing it her only chance, for my diagnosis, gentlemen, from the past history, the present symptoms and the neglect of making a vaginal examination, was appendicular abscess. I called Dr. Potts in consultation and we found a pulse of 110, temperature normal, pain constant, mass in right side increased in size and a bad expression. We advised immediate operation, which was accordingly done two hours later.

Gentlemen, this is the history of the case since patient first came under Dr. Leonard's care.

The usual incision was made, parallel with the outer border of the right rectus muscle, and on open-

ing the peritoneal cavity clot after clot escaped until we reached the source of a free flow of blood; free, it was more than free, it was terrifying. We at once discovered a rent through which a fetal head was protruding. The tube was at once ligated at its uterine attachment then distally and the mass removed, wound closed in center, gauze drain introduced above and below, patient almost dead from loss of blood. Saline transfusions given at regular intervals, which relieved her symptoms of acute anaemia and shock about the third day, from which time on she made an uneventful recovery.

Gall Stones.

BY LEGRAND GUERRY, M. D., COLUMBIA, S. C.

My first idea in presenting this paper was to report some cases, but, when I recalled Mr. Bland Sutton's preface to his work on Gynecology, the idea was changed entirely. The preface reads as follows: "When physicians learn to restrain their vanity and cease from publishing long lists of uninteresting cases, the accomplished facts of our science may be presented in much more convenient form."

In casting around for some suitable subject of practical importance on which to write, it has occurred to me that none could be more practical or more important than Gall-Stones.

Statistics compiled from the highest authorities on this subject prove that gall-stones are present in about ten per cent of all bodies that come to the post-mortem table for examination. One high authority makes this

statement: "On an average, every tenth human being, and of elderly women, perhaps one-fourth, has gall-stones."

As an explanation of the remarkable frequency of this malady is submitted the following: the gall-bladder bears a close resemblance, in construction, to the appendix, urinary-bladder and renal pelvis; we have at one end of each of these organs, practically, a closed pouch. So long as no trouble arises to prevent them from emptying themselves all is well, but just as soon as some obstruction arises trouble is very likely to follow. "The injury may be simple catarrhal at first, but will later become destructive to the mucous membranes, giving rise to ulceration; this will result in cicatricial contraction, then in further obstruction."

Manifestly, in an organ so placed and so constructed, drainage is imperfect, and this increases the likelihood of infection. We now know that infection, nearly always, preceded the stone formation.

On examination into the history of any considerable number of cases we, practically always, find that the patients have, for a long period of time, suffered from so-called indigestion, gastritis, etc.; this is the symptom that needs to be watched most closely, for often by its just and accurate interpretation we will be able to make an early diagnosis; here as elsewhere, the sooner we make our diagnosis the more promptly we afford radical relief and the greater will be our chance of a permanent cure; conversely, the longer the disease is allowed to stand the more extensive and severe will be the pathological process and the less likelihood of a cure. Indigestion is not nearly so often a disease, *per se*, as it is a symptom; there is no more frequent a mistake than that of treating those vague gastric disturbances as indigestion; as it has been said already, in nearly every

instance, one gets a history of "chronic gastric disturbance:" curiously enough, there is a definite relationship between the muscular contractions of the stomach and the gall-bladder.

A slow chronic infection with obstruction to the out-flow of bile is the essential factor of gall-stone formation. In six consecutive cases operated on recently there was definite history of typhoid fever in each case. The following table will illustrate fully the etiology of gall-stones:

1. The bacillus coli and the bacillus typhosus are the specific organisms concerned in the formation of cholesterin calculi.

2. The streptococcus pyogenes and the staphylococcus pyogenes aureus are rarely the causes of gall-stone formation. When they are, the stone consists solely of calcium salts.

3. If the bacillus coli and the streptococcus or staphylococcus are present, the stone is of mixed formation, consisting of cholesterin, calcium salts and bile pigment.

4. The bacillus subtilis grows well in bile but does not alter it in any way.

The following conclusions may be accepted:

1. The chief constituents of gall-stones, cholesterin, bilirubin and calcium are produced by sub-acute inflammatory changes in the mucous membrane of the gall-bladder, which result in desquamation of epithelium and increased production of mucus.

2. The injection of a virulent culture of micro-organism produces an acute cholecystitis without the formation of gall-stones.

3. The injection of attended culture causes no change if drainage from the gall-bladder is free.

4. Retention of bile, brought about by the introduction of sterile foreign bodies does not cause the formation of stone.

5. If retention of bile be brought about by ligature of the cystic duct or by the introduction of foreign bodies (which cause a stasis of the bile adhering to them and between them), and an attenuated culture be injected, stone formation will occur.

6. The gall-bladder is the chief seat of the formation of gall-stones.

7. The clumping of typhoid bacilli within the gall-bladder may possibly furnish an explanation of the occurrence of cholelithiasis after typhoid fever.

Symptoms.—Pain due to gall-stone formation is either localized or referred. Localized pain is caused by increased tension and is limited to the gall-bladder; in certain cases where the infection is very virulent and more widespread pain, at times, is quite unbearable. "The most characteristic and constant sign of gall-bladder hypersensitiveness is the inability of the patient to take a full inspiration when the physician's fingers are hooked up deep beneath the right costal arch below the hepatic margin. The diaphragm forces the liver down until the sensitive gall-bladder reaches the examining fingers, when the inspiration suddenly ceases as though it had been shut off." I have never found this sign absent in a case of calculus or in infectious cases of gall-bladder or duct disease. Both the localized pain and the more diffused pain are due to infection and inflammation; in the one infection is confined

to the gall-bladder, producing gross changes; in the other the inflammatory process has involved the adjacent structures and welded them together with dense, unyielding adhesions. Pain due to gall-stone colic is about as severe suffering as one is ever called on to bear; this variety of pain is always due to the spasmodic contraction of the muscular layers of the cystic or the common duct in their effort to expel a stone; should the stone be small enough to pass through the duct, without causing muscular spasm, the suffering is not so intense. The spasmodic pain of hepatic colic is not observed so often as the dull or more localized pain if the diffused infection already mentioned; for this reason, in a great number of cases, the stones remain in the gall-bladder. By referred pain is meant pain that is referred to the right sub-scapular region, occasionally to the left. Nausea and vomiting are partly reflex and partly due to direct involvement of the stomach. Moynihan says: "It is the frequency of nausea and vomiting that is responsible for the unjust and heavy burden laid on the stomach. If one wished to frame an epigram he could, with truth, say that the most common symptoms of gall-stones were due to indigestion." Jaundice is a rare symptom of cholecystitis. According to Murphy it is only present in about fourteen per cent of all cases, which opinion is in thorough accord with other competent observers. Jaundice in gall-stone disease depends on the presence of a stone in the hepatic or common ducts; stones in the cystic duct do not produce jaundice unless they are unusually large. Jaundice due to gall-stones is practically always preceded by colic; one high authority makes this distinction—in jaundice due to gall-stones the golden yellow predominates, in jaundice due to malignant disease, the green color. We must remember that in over eighty

per cent of cases where jaundice is due to common duct obstruction by gall-stones the gall-bladder will be found contracted; where we have a dilated and distended gall-bladder with jaundice the cause will be other than stones. A painless and deepening jaundice with a distended gall-bladder is very characteristic of malignant disease, most probably at the head of the pancreas. "There were 187 cases of obstruction of the common duct from all causes. Of these 100 were due to obstruction of from causes other than stone, and 87 were due to obstruction by stone. Of 100 cases in which obstruction was due to causes other than stone, in 92 cases there was a normal gall-bladder. Of 87 cases in which the obstruction was due to stone, in 70 cases the gall-bladder was small and atropied; in 17 cases the gall-bladder was dilated."

The following is now generally referred to as Courvoisier's law: "In cases of chronic jaundice due to blockage of the common duct, a contraction of the gall-bladder signifies that the obstruction is due to stone; a dilatation of the gall-bladder that the obstruction is due to causes other than stone."

The temperature has been aptly styled the "steeple temperature" because the variations are so sudden and varied. Murphy speaks of the "temperature of a cholangic infection." One's temperature will rise to 105 degrees F., then almost as suddenly fall; often times we see a rigor, especially in severer cases. Between the paroxysms the temperature may remain practically normal; the rise and fall is very abrupt and irregular.

Tumors of the gall-bladder are generally easy to recognize; they may be due to malignant disease of the gall-bladder itself, or to anything that may produce obstruction to the common duct. In not a few instances the stones are so numerous as to produce a tumor.

Where tumor is present we usually find the characteristic pear-shaped mass immediately beneath the edge of the liver and under the ninth costal cartilage.

The following group of symptoms will enable us to make an early and accurate diagnosis:

1. Digestive disturbances, a feeling of weight or burning in the vicinity of the stomach after eating, with gaseous distention of abdomen.

2. A dull pain extending to the right from the epigastric region around the right side about a level with the tenth rib, passing to a point near the spine and progressing upwards under the right shoulder blade.

3. A point of tenderness upon pressure between the ninth costal cartilage on the right side and the umbilicus.

4. In many cases there is a slight tinge of yellow in the skin, not sufficient to be recognized as icterus, but still sufficient to be perceptible upon close inspection, especially on days on which the patient is not feeling very well—when one complains of feeling “bilious.”

5. There is usually an increase in the area of liver dullness.

6. There may be a swelling of variable size opposite the end of the ninth rib.

7. When stones obstruct the common or cystic duct we see clay-colored stools.

No mention, whatever, has been made about treatment. We hope that this aspect of the subject will be developed fully in the discussion; incidentally, our own personal view is that gall-stones is just as much a surgical malady as is appendicitis. The questions at issue are surgical ones, and a competent surgeon should be

given the earliest opportunity to decide them. What we, of rank and file, stand in the greatest need today is a knowledge of pathology; we do not need so much to know how to operate, as how to make an accurate diagnosis. In the deepest meaning of the word there is no such thing as surgery apart from pathology; there may be operations but this is not surgery in the broadest and most philosophical sense. If a man be a pathologist he may be neither a surgeon or a physician, but he can be either he selects. Reduced to its last analysis, the solution to gall-bladder and duct surgery and to the surgery of the appendix, as well as the forestalling of fatalities, complications and sequelae, lies in the increased knowledge of pathology among the average medical men; for then, and not until then, will he be able to understand the danger of that sinister word—procrastination.

The Surgical Treatment of Duodenal Ulcer; With a Report of Cases.

BY WILLIAM D. HAGGARD, M. D., NASHVILLE, TENN.

Professor of Gynecology Medical Department University of Tennessee; Formerly
Professor of Gynecology and Abdominal Surgery, University of the South.

In the last seven months the writer has had under observation eight cases of duodenal ulcers. Three cases were operated upon with recovery. Two were referred to Dr. W. J. Mayo for operation. One was treated medically with, at least, temporary cure; another, a physician, has deferred operation, and the last was a fatal

hemorrhage in a young woman in which the diagnosis seemed to be fairly certain. Three were females, aged thirty-three, twenty-four, and seventeen; and five males, aged sixty-two, forty-six, forty-three, forty-two, and thirty-three respectively.

The duodenum is unique in its functions. It acts as a vestibule for the small intestine and is a meeting ground for the acid stomach ingesta and the alkaline biliary and pancreatic secretions. The four inches above this point partakes of the character of the stomach and its ills, and is more frequently diseased than any other part of the intestine of equal length, save the rectum. Duodenal ulcer is much more serious than gastric ulcer. The coats are much thinner and the danger of erosion of large blood vessels is much greater and the likelihood of sudden death from perforation makes it a very fearful malady.

Its symptoms are not so frank, and when present are either construed as gastric, or mimic the manifestations of gall-bladder disease confusingly. It is in the operating room that the real living pathology of the duodenum is being developed, and it was in operations undertaken for one or the other above diseases that disclosed the true cause of the symptoms to be duodenal disease, and thus our knowledge is being enriched and the interesting and unsuspected frequency of duodenal ulcer, in comparison with gastric ulcer, demonstrated.

Burwinkler considered the ratio between gastric and duodenal ulcer as twelve to one. In 1896 there were but nine reported operations. Out of 231 cases of gastro-jejunosomy for ulcer, the Mayos had 119 males and 112 females, of which 158 were gastric, 60 duodenal, 14 duodenal and gastric. The duodenum was therefore involved 74 times, or in nearly one third.

It has the same etiology as gastric ulcer, viz.: injury

of the mucosa (seventy-five per cent, occur in the grinding or pyloric end), anemia, and hyperchlorhydria. This latter factor is evidenced by the location of the duodenal ulcer nearly always above the entrance of the common duct with the alkaline discharges from liver and pancreas, and also by the occasional appearance of peptic ulcer in the jejunum after gastro-jejunostomy, where the long loop was used a number of inches from the alkaline influence of the bile and pancreatic outflow. Where the short or no loop method is used this occurrence is rarely seen. Ewald produced duodenal ulcer in animals by the administration of HCL, 1 to 2.000. Men have a greater tendency to hyperacidity from high living. Rough food, too, with alcohol and tobacco, increases acidity.

Location.—The ulcer is generally in the first four inches, and above the papilla, and is particularly prone to occupy the first two and one-half inches. Mathematically it is ten times more frequent in the first than in the second part. Collin, in 262 collected cases, found 242 in the first portion. They are rare below the entrance of the common duct and cause chronic jaundice or atrophy of the pancreas.

Sex.—It exists in males in the proportion of 2.5 to 1 in females (Mayo and Graham), and Moynihan found 32 males as against 19 females.

Age.—It occurs most frequently between the ages of fifteen and twenty-five in the female and from forty to fifty in the males. They have been known to occur immediately after birth. Cutler collected eight under seven years, and nine between seven and thirteen. Chvostek found one in a babe of three months. The average age at death in 127 cases was thirty-eight years. seven years, and nine between seven and thirteen.

One case ninety-two years old was successfully operated upon by Wallis.

Burns.—Formerly considerable mention was seen of the effect of burns, superficial, in the production of duodenal ulcer within a few days or a fortnight. Holmes and also Collins found this complication in about twelve per cent., respectively, in two groups of cases collected. It appears to be a septic infection and since the anti-septic management of burns has come into general adoption few ulcers have been reported. Thus, Lockwood collected 139 cases treated more or less antiseptically with only one ulcer.

Symptoms.—It is regrettable that ulcer of the duodenum sometimes exists without any symptoms, until a sudden and perhaps fatal hemorrhage or perforation declares its threatening existence. Morot estimates that twenty per cent. are thus latent. It may persist unrecognized and symptomless during life. In 151 cases examined by Perry and Shaw post-mortem, no history of the condition could be obtained in 91. The absence of symptoms is explainable upon the ground of the absence of motility of the organ as compared to the stomach (Budd). The food when it makes its transit through the duodenum is chymified and there is no grinding there. Latency exists as long as there is no motor insufficiency, when the acidity is not above normal, and in the absence of perforation. Under these conditions there is no belching, vomiting, or pain, and the ulcer may lie unsuspected until hemorrhage betrays it.

When symptoms are present they may be pigeon-holed under some inexact and meaningless conception of indigestion or dyspepsia as an entity with our ineffectual efforts at prescription relief. Even when one approaches the case with a just appreciation of the im-

portance of determining the precise pathology of digestive disorders, the problem has just begun. On the one hand, the similarity of the manifestation of duodenal and gall-bladder disease confronts the clinician; and on the other, likelihood of regarding even the suspected ulcer as gastric, prevents the art from being an exact one.

The classical duodenal symptoms of pain, hematemesis, and melena, if present, will unerringly lead to an early diagnosis.

Pain.—Pain is produced by the irritation of the open ulcer by the hyperacid gastric juice and should therefore come on near the end of stomach digestion, or in about four hours. It sometimes occurs in two hours, and may be delayed six. To put it in another way, it occurs say, an hour before meals and is relieved by food. It sometimes significantly occurs in the small hours of the morning. It is of a burning character, and located in the middle line or along the right costal border. It may only amount to a vague feeling of distress in the epigastrium. In some patients it is cramp-like and increases with intolerable severity. This colicky pain is caused by pyloric spasm.

Time of Onset.—When patients complain of pain that comes on three or four hours after eating, they will frequently say that they have no inconvenience after eating; that it always occurs “just before meals,” and they call it a hungry pain. They also find that something taken then will relieve the pain. This is due to the fact that the pylorus closes when food is in the stomach, and the hyperacid gastric juice no longer gains access to the duodenum. Thus the patient will deny having indigestion and boast that they can eat anything; indeed they do eat freely because the hyper-

chorhydria gives increased ability to digest food, and the more that is taken the longer digestion is retarded and the pain delayed.

These cases therefore who do not restrict their food do not lose weight in the early stages and appear quite healthy and well-nourished. As the ulcer continues, the pain becomes more constant, food fails to give temporary relief, and drugs also. The diet is then cut down and emaciation results.

As a most satisfying clinical experience Moynihan speaks of having been able to predicate the existence of both gastric and duodenal ulcers upon the pain being produced shortly after taking food and causing irritation of the gastric ulcer, then abating owing to the food becoming chymified and finally producing fresh pain late in the process of digestion, as the contents of the stomach are passed into the duodenum and in contact with the ulcer

He says, "The symptoms in duodenal ulcer in many cases are perfectly characteristic, and admit of an unhesitating diagnosis. I am compelled to dissent very confidently from the statement so often repeated that it is impossible to distinguish between an ulcer of the stomach and an ulcer of the duodenum. Even in those cases in which both gastric and duodenal ulcers are present, when the difficulty of diagnosis might be expected to be at its highest, a careful scrutiny of the history will generally allow a discrimination to be made between the symptoms due to the one and those due to the other condition. I do not pretend to say that in all cases the diagnosis is easy; on the contrary, in some cases it is impossible, because gastric ulcer and gall-bladder disease may both be complications in the same case. In many cases, however, a diagnosis is possible and in some is unmistakable."

Vonwyl has grouped the distinguishing diagnostic factors in gastric and duodenal ulcers in the following schema:—

GASTRIC ULCER.

1. More frequent in women from the twenty-fifth to fiftieth year.
2. Pain promptly after eating.
3. Relieved by vomiting.
4. Frequent vomiting of bile, mucus and food.
5. Marked dyspeptic symptoms.
6. Frequent bloody vomiting.
7. More seldom, bloody stools.

DUODENAL ULCER.

1. Occurs most frequently in males.
2. Pain in right hypochondrium, or to right of parasternal line.
3. Comes on in from two to four hours after meals.
4. No relief by vomiting; latter not frequent.
5. Bloody stools (melena or bright blood) more common than bloody vomiting.
6. If jaundice is present, this would contribute to diagnosis.

Hematemesis and melena may exist singly or together. Hemorrhage from the bowel is more likely to escape detection than a small amount from the stomach. Hence the histories of patients are misleading as to the relative frequency. It has been estimated at from forty-six per cent. (Leube), to eighty-one per cent. (by Greenough and Joslin). Both of these estimates appear to be too high if used as a basis of diagnosis. The

latter per cent. was from a series of known ulcers. It is more to the point to determine, if possible, in what per cent. to expect hemorrhage in cases in process of diagnosis. Graham found twelve histories of hemorrhage in forty-six cases that proved to be duodenal, twenty-six per cent. In four other cases in the same group blood was discovered in examination of the stomach contents. In Moynihan's twenty-three cases, hematemesis and melena occurred in four; hematemesis in three; melena in two, thirty-nine per cent.

The amount of blood lost sometimes proves fatal. The death-rate is computed by Perry and Shaw to be thirteen per cent., and by the Fenwicks at thirty-six per cent. Fatal hemorrhage may be attended with no hematemesis, the blood escaping by the bowel.

Melena may cause faintness, and marked distension of the colon, showing a deep blue color through the intestinal walls, has been observed during operation. While it is usually tarry from being partly digested from its passage through the entire intestinal tract, it has sometimes been observed to be clotted.

Hemorrhage from a duodenal ulcer does not cease spontaneously as easily and quickly as from a gastric ulcer. The pancreatico-duodenal artery may be eroded; the hepatic has been opened and also the portal vein, and even the aorta. It is well known that hematemesis of serious amount may occur without any reference to previous digestive disturbance, or the indigestion that may have been present will not seem to be related in any way to the hemorrhage.

Any intestinal hemorrhage not clearly from the rectum or from disease of the heart, kidney, or liver, or typhoid fever, should be looked upon as suspicious of duodenal ulcer. With reference to hemorrhage Berg has formulated the following indications for operation:

"1. In the presence of acute, profuse, uncontrollable bleeding, which placed the life of the patient in grave jeopardy.

"2. In the presence of frequently repeated bleedings; even if they were not very profuse, that undermined the patient's strength and led to a chronic anemia. Operation is not considered advisable when the patient's general condition is bad, the hemoglobin very low (nineteen to twenty per cent.), and the pulse rate very rapid. In such a case, the operative shock, no matter how slight it might be, whether or not it is combined with the added depressing and hemolytic influence of a general anesthetic, was sufficient to cause the death of the patient. It is far better in such cases to trust to internal remedies and complete rest, induced by morphine, to check the bleeding. When, however, the patient's condition is still good, and the hemoglobin count is above thirty-five to forty per cent., an immediate operation is strongly advised."

Perforation.—Free perforation of a duodenal ulcer is one of the most tragic catastrophes that can happen in the human body. It is sudden, unexpected, and perhaps without the slightest premonition. An agonizing, stabbing pain in the epigastrium, followed by shock and collapse, attended with vomiting, subnormal temperature, rapid, thread-like pulse, followed by a rise in temperature, abdominal tenderness, distention and peritonitis, is the classic and ominous picture of a perforative peritonitis.

That is; perforation peritonitis, is all that can be said. Fortunately if the condition is treated by operation promptly it is not material that it cannot be diagnosed with certitude as a duodenal ulcer. It is infrequently considered duodenal in origin even though operation is deemed necessary. Nineteen out of fifty-one

cases collected by Weir were considered perforative appendicitis. The escaping fluid is directed to the right by the hillock of the transverse meso-colon, and flows down the outer side of the ascending colon to the right iliac fossa. There the inflammatory battle is at its height, and hence the similarity to appendicitis. It was diagnosed acute peritonitis thirteen times, intestinal obstruction five times, together with the nineteen considered as appendicitis. This gave thirty-seven wrong diagnoses in fifty-one cases. The practice of operating upon all sudden abdominal emergencies early serves to render an error in diagnosis unimportant. Without operation practically all perforations of this type are fatal. Operation should be done promptly, certainly in the first eight hours.

Notwithstanding the incision may be over some other suspected area, the finding of transparent or bile-stained fluid makes the diagnosis. It differs from gastric contents or from perforation elsewhere in the intestinal tract. The perforation is more difficult to close on account of the deep-seated location and immobility of the viscus. A linen purse-string or Lambert sutures are the most effective. Gauze drainage should never be allowed to rest on the suture line.

If the perforation is recent, sponging the area is preferable. Many men do not irrigate at all, relying upon local cleansing and drainage by large tube over the symphysis. Indeed, Murphy strongly advises against irrigation in generalized peritonitis, claiming that it disseminates the infection, is time consuming, and prolongs the anesthetic; that it is the confinement of pus under tension that is the dangerous feature and that drainage and the upright position (Fowler's position) are the essentials. He has saved twenty-three out of twenty-four cases of suppurative peritonitis by this

treatment. I have followed this plan in three advanced cases recently with success. One had subnormal temperature and pulse of 140, and appeared well-nigh hopeless.

There is a temptation to irrigate the cavity, and the practice, while not generally adhered to as formerly, still has ardent champions (see discussion in London *Lancet* between Mr. Bruce Clark and Messrs. Turner and T. Crisp English. The latter defend it stoutly, and have saved nine out of twelve cases with it). Moynihan saved five out of seven (no irrigation).

English collated fifty cases of operations for perforated duodenal ulcer with fifty per cent. mortality. This has been reduced greatly in individual series and is perhaps generally not over twenty per cent. It should and can be brought much lower by prompt operation, speedy suturing, no irrigation, supra-pubic drain, and Fowler's position. It has been suggested to administer methylene blue before operation to aid in the detection of the perforation. No attempt should be made to excise the ulcer. Whenever the condition of the patient does not forbid, gastro-enterostomy should be performed at the time to allow the ulcer to heal. Moynihan was able to do two in his seven cases.

Chronic perforations resulting in localized peritonitis and adhesions are very common in duodenal ulcer on account of its sheltered position and close proximity to other organs. This gives rise to sharp attacks, the relics of which persist and give chronic pain and digestive disability. The implication of the gall-bladder in the adhesions imparts a gall-bladder syndrome, and these are the cases that are so difficult of exact definition of gall-stones from duodenal ulcer:—

“Pain in cholelithiasis is often sudden, severe, has a wide field of radiation, comes absolutely irregularly,

is independent of, and is not eased by food, nor so often traced to it. No stomach history is given between the short, precise spells; spasm of the diaphragm is nearly always observed, and vomiting and gas are present only during the attack, and the relief through vomiting and gas eructation is not as certain. The vomit is usually scanty, yellow, and bitter, and acidity is extremely rare.

“In duodenal ulcer the pain comes in decided periods of attack, may be and often is sudden, has a very limited field of radiation, may be irregular as to the time of separate attacks, but regular as to periods. It is quite dependent upon food, being early eased, and later pain disappears. The history of gas, vomiting, and acidity runs parallel to the periods of pain. No spasms of the diaphragm occur except in some cases of perforation. The vomiting and belching are usually decided in quantity and quality and followed by relief.

“There will always remain a certain proportion of cases that will mislead the careful physician. Those gall-stones where the stomach symptoms of gas distress, sour belching, and dilatation predominate, and pain is but little complained of (and that only of a dull character), will usually be diagnosticated ulcer; where the duodenal case whose chief symptom is the sudden, sharp, intense pain of perforative peritonitis, and where with no obstruction and hyperacidity, the other stomach symptoms are in abeyance, will fall to cholelithiasis. Such error in diagnosis does not militate against the clinician, as both conditions are purely surgical and the differentiation in many cases must be made on the operating table.”

Treatment.—In the acute ulcer or erosion of young anemic females, manifested by slight bleeding usually, the well-known dietetic treatment yields very satis-

factory results. In the indurated or chronic ulcer, which is prone to perforation in middle life and more frequently in men, medicinal treatment is very disappointing in the permanence of cure. It is to this class of persistent sufferers, where relapses have occurred and where the pain and discomfort interfere with the conduct of life, that operation has been so brilliant. This is especially true in pyloric or duodenal obstruction, even though the ulcer is healed.

Surgery should be kept strictly within the limits of a mechanical appliance. It cannot be asked to act in any miraculous or mysterious way. The indication is solely for better drainage of the stomach, and at a point where the food and acidity will not have to pass over the irritate the ulcer. It is the old principle of rest. The operation which accomplishes this best is gastro-enterostomy. Theoretically, also, it is a good thing to absolutely obstruct the pylorus and thus give the ulcer certain immunity. This can be done in connection with gastro-enterostomy by cutting through the pylorus and closing each end by suture, or by surrounding it with a moderately tight constriction of silver wire (Fowler). This would stop the food current but not cut off the circulation. Practically, however, this step is rarely employed by the masters who have perfected the work.

Mumford says: "Operations on the stomach and intestines are particularly careful work. They differ from ordinary surgery as much as the work of the woodsman differs from that of the tailor. In general terms routine operations on most parts of the body imply *destruction*. Stomach surgery implies *construction*. The hasty operator should have no part in such tasks. It requires a peculiarity of temperament, a nicety of touch, an exquisite care of detail, successfully

to perform a pylorectomy, a gastro-enterostomy, or the operation of Finney, such as was not always acquired by general surgeons a few years ago. Gradually and of late some few operators have perfected themselves in it, and to such men we owe it that in the past two years the mortality of these operations has fallen rapidly and is still falling; while from a comparison of experiences, old and new, and immediate results, we are coming to perceive with added assurance that our end-results are to be increasingly good."

Mayo has the last six months been employing a little different technique, which the writer used in the cases of duodenal ulcer referred to in this paper, as well as in operations for gastric ulcer proper. The difference consists in making the incision in the stomach which afterward becomes the anastomotic stoma, from the patient's right to left instead of the left to right incision as in "Moynihan's oblique line." It is believed that this is in closer topographic harmony with the course of the jejunum as it leaves the plica-duodeno-jejunalis and lies in apposition with the posterior gastric wall with only the meso-colon intervening. It appears to be the absolute anatomic point for the new aperture. In this operation "vicious circle," so common with the long loop, is practically unknown. Moynihan performed 173 gastro-enterostomies with two deaths, one per cent. These results seem quite ideal.

Case 1.—Mrs. P., age 33, married sixteen years, four children, all living; father, mother, brother, and sisters, all living. She had all childhood diseases, but no sickness since grown until two years ago, when she belched up small quantities of water. This grew gradually worse for a year. For the last six months she feels when she eats that what she swallows does not go down. Swallowing was painful; did not eat much; ap-

petite bad. She would vomit about three or four hours after meals, sometimes even five hours. These attacks brought great pain. Pain was in epigastrium, and at times would be more to the right, and she could feel it "working." This was most severe pain. Pain radiated to right scapula, also all through right lung. No pain on left side; vomited some blood once, about three hours after a meal. Headache accompanied spells. Bowels constipated for six months past. Lost 20 pounds during last six months. Lately everything she ate and even lime water hurt her.

Nov. 25, 1905. Exploration of the gall-bladder proved negative. An indurated ulcer was felt and seen in the duodenum as large as a five cent piece. We performed a posterior gastro-enterostomy with suture, and her recovery was uneventful. At the end of six months she remained perfectly well, has gained thirty-five pounds, and is able to eat and digest her food without pain. She expresses herself as feeling better than for two years, and believes herself pregnant.

Case 2.—Mrs. R., age 24, operated on Sept. 28, 1905; married four years; one child three years old; two miscarriages, first, December, 1903, second, March, 1905; health good up to last March. For five years she has had indigestion; in beginning had a spell about once a week but did not last long, and they were not severe enough to require opium. Spells did not get any worse until last March, since which time they have continued to get worse. She says she has suffered every minute since June; has had nausea since March with spells, but did not have it previous to March. Since June she has vomited; appetite has been good, and she could eat anything but for the pain. Has noticed slight amount of blood in vomit since June. four or five times, but never passed any blood by bowels.

She has had some cough for two years, but not a great amount. Has been in bed three or four weeks, preceding suffering with the stomach; not much soreness and no severe pain. Has lost fifteen or twenty pounds since last March. Bowels constipated until recently; has not been bothered with it in last week.

Her mother died at fifty-four of lung trouble; one brother had epilepsy and burned to death. Upon physical examination she was greatly emaciated. There was a slightly tender but somewhat movable mass in the right hypochondriac region the size of an orange. A test meal showed free hydrochloric acid in excess. The stomach tube while in position was attached to a Davidson syringe and the stomach distended with air, and was found to reach considerably below the umbilicus. Dilatation was present; no prolapsus. The pyloric tumor was evidently the obstructing mass causing the dilatation. The patient had cough, expectoration, afternoon temperature, spots of solidification, and tubercle bacilli in the sputum.

It was evident that she was dying of interference with nutrition from pyloric obstruction rather than from the pulmonary condition, and it was thought that if she could be relieved of the food obstruction that it would give her the only chance to fight the tubercular process. Increased nutrition incident to pregnancy in tuberculous women often makes them take on flesh and the pulmonary process is held in abeyance for the time. It was thought that increased nutrition would be equally serviceable in this case. Accordingly operation was advised and explained. In her emaciated condition the quickest method was chosen—anterior gastro-enterostomy with the Murphy button. The pyloric tumor was an inflammatory mass around a duodenal ulcer. It was not disturbed. She made a surprisingly quick recovery;

gained greatly in weight; was able to eat heartily; got better of her cough and fever; and at the end of eight months was wonderfully improved. The button has not passed.*

Case 3.—C. A. H., age 43, carpenter; stomach trouble began at thirteen or fourteen years of age. He had sour stomach and vomiting, which would come in spells from every three to six hours; sometimes skipping six months or a year. He had been almost free of trouble for a year before the present spell, except for sour stomach and vomiting. Has always been severely constipated. About a year ago he began with vomiting, from three times a day up to twenty times in twenty-four hours. There was an interval of three months and no vomiting. Since January he has had three days as longest interval. Beef and canned peaches hurt him, and all fruit except bananas will give pain immediately or in three hours. Light bread gives immediate pain. Pain was as conspicuous and often as the vomiting, and comes on in from ten minutes to two hours. He has had most pain this spell from 11 to 2 o'clock at night, after having supper at 7 o'clock. He has vomited blood four or five times, only slightly streaked, and one or two small clots; last time a month ago. Vomiting has been very black, often looking like coffee grounds. He has frequently vomited up things eaten the day before. He was not nervous, but had lost twenty-two pounds. Average 125.

A stomach test showed free hydrochloric acid and considerable distention below the lower border of the stomach, coming four finger breadths below the navel. The diagnosis of pyloric obstruction was made and a posterior gastro-enterostomy was performed

*The patient succumbed to the pulmonary tuberculosis since this paper was written.

March 20, 1906. The pyloric opening was contracted so that the little finger could not be invaginated through it. There had been an old ulcer which had healed, causing the obstruction. The scar and contraction of the ulcer encroached more upon the duodenal side. Recovery was very prompt and he began eating soon afterwards. There was never any pain and he vomited only upon two occasions. He rapidly took on weight and is now actively engaged at his trade.

Pneumonia.

Some Views From a Practical Standpoint as to Treatment Based on Advanced Ideas of Casuation and Pathology.

BY JOHN N. UPSHUR, M. D., RICHMOND, VA.

Ex-President of the Richmond Academy of Medicine and Surgery; ex-President and Honorary Fellow of the Medical Society of Virginia, and of the Tri-State Medical Association of the Carolinas and Virginia; Honorary Fellow of the State Medical Society of West Virginia, Etc.

The serious nature of pneumonia, as to its mortality, is at the present day of absorbing interest to every man, not only in the medical profession, but to the laity also. The fact that this mortality is on the increase, that it is in excess of that of consumption, typhoid fever, diphtheria, erysipelas, influenza, measles, puerperal fever, small-pox, scarlet fever and whooping cough. Why should this be so? The old views entertained as to the causation and nature of pneumonia have been superseded by the more modern and advanced ideas, and it is now

defined as an "*acute, infectious, self-limited, disease.*" This is a radical change from the old view, which regarded pneumonia as a *local inflammation* of the lung, usually caused by cold and exposure. The modern idea of pneumonia is a constitutional disease, caused by specific germ, and the lesion in the lung simply the local manifestation, just as involvement of Peyer's patches is in typhoid fever. Of course, belief in this later view of necessity has caused a radical change in the treatment of the disease; I ask, is the increased mortality due to the *new, do nothing, expectant*, method of treatment? We are told that statistics prove that the treatment is correct, prove the increasing gravity and mortality of the disease. But I ask, if the increasing mortality may not be due both to errors in diagnosis, and to confusion with other forms of pneumonia? We know that catarrhal pneumonia is very fatal, usually occurs in the decline of life, and is not claimed to be caused by any germ. In his recent work on "Practice," Dr. Hare says (p. 142) that the specific germ, the "*micrococcus lanceolatus*," has been found by Prochaska in thirty-eight out of forty consecutive cases, and by Rosenow in seventy-seven out of eighty-three, and has discovered it in the blood, as early as twelve hours after the initial chill. "*On the other hand the mere presence of the pneumococcus in the blood of a patient does not necessarily mean that pneumonia is present*, for it has been found in the blood in cases of *tonsilitis, otitis, arthristis*, and in *pulmonary oedema*. (Italics mine.) Now I think it will not be denied that the *presence of the bacillus of Eberth is absolutely diagnostic of typhoid fever*, and of no other disease. It is true that the plasmodium of malaria may be found in the blood at the same time, but it is only the existence of a double infection, and the later is dwarfed

in its manifestations by the former. The bacteriologists tell us that the pneumococcus is found almost universally in the mouth and produces pneumonia when the system is depressed by any cause, as for instance, cold. Would the same presence of the typhoid germ have so small a return in the production of cases of fever, acting only when the depressing factor was at work? *Per contra*, is it not true, that the healthiest individual subjected to contaminated food or drink, will develop typhoid fever, and furthermore, the more stalwart and robust the subject, the higher and more dangerous the type of fever developed. Certainly it has been the experience of the writer that subjects considered delicate have usually run a more favorable course of fever. I would not be dogmatic, and I feel reluctant to set up my views against those of wider observation, but with the facts as stated, I am forced in the direction at least of question concerning modern ideas of causation and nature of pneumonia. Especially is this true when the all important question of treatment is to be considered. The question of termination by crisis is well to the fore, but it is admitted that it also terminates by lysis, and the time of the crisis is fixed within quite wide limits—*three* to eleven days. The question of crisis is only connected with croupous pneumonia; I am not aware that it is claimed for any other variety of pneumonia.

The development of the disease more frequently in men is due to the greater prevalence in men of depressing causes, such as excessive fatigue, exposure, alcoholism. A significant fact in its bearing on the mortality in pneumonia, is alcoholism, and incidental to it, high living, ingestion of rich foods and the consequent tendency to the development of cardiac disease, Bright's, atheroma of blood vessels. Many of the cases

treated in hospitals from which we get our statistics are alcoholics, who suffer from degenerative changes in the nervous system, the vital organs, or some one of them; I would especially emphasize the fact that it is not so much the man who 'sprees' as the steady drinker, who never gets from under the influence of intoxicants. Nor does it apply entirely to alcoholics, but *drug dopes*, come under the same class. The common habit of taking patent remedies of all kinds—headache cures, kidney cures, etc., which contain all of them, more or less active constituents which depress the heart. I am not convinced of the contagiousness of pneumonia, though much has been advanced in proof thereof; but it is always wisdom when a question is raised, and a doubt arises, to err on the safe side, and keep these cases isolated as far as possible, exerting due care, especially, in the disinfection and disposal of the sputum.

Treatment.—Based on the most advanced ideas of the causation, nature, and course, of the disease, the treatment recommended impresses me as being of an expectant, do-nothing kind. Dr. Haré in his recent work on "Practice" tells us—"that the treatment varies greatly with the condition of the patient suffering from the disease; when it attacks the stout and robust, the only duty of the physician, in a large number of cases, is to watch the symptoms of the patient, to insist upon rest in bed in a well-ventilated, quiet, room, and to administer a sufficient quantity of Dover's powder, bromide or morphine, to control pain, if that symptom is excessive. If, on the other hand, the patient is one who has been addicted to alcohol in excess, whiskey or brandy should be given him in amounts varying with the quantity he has been accustomed to ingest daily." This, he explains, "Is done to prevent the development of delirium tremens." He also enjoins the physi-

cian "Not to meddle with the course of the disease unless the symptoms are so pressing as to require interference." He recommends alcohol as one of the best stimulants, and says rarely does the patient require more than eight to twelve ounces per day. For cardiac failure, he recommends "aromatic spirits of ammonia or Hoffman's anodine." "For cardiac weakness, strychnine should also be borne in mind." He makes a qualified recommendation of tincture of digitalis, and says, "*If the cardiac weakness is due to toraemia with high temperature, the heart should be quieted by the application of an ice-bag to the pericardium.*" He says that he has known "*application of ice-bags and cold sponging of the body, followed by manifestation of the digitalis influence.*" In collapse hypodermics of strychnine and atropine and hypodermoclysis of normal salt solution with one drachm of 1-1000 adrenalin solution. To control temperature, he recommends sponging with tepid or cool water, but says it is not to be carried to the extent that is done in typhoid fever."

I have thus outlined the most modern treatment of pneumonia as given by a very recent authority. I am constrained to have the temerity to differ. I cannot approve of what looks like to me a do-nothing policy. The administration of *suitable remedies, promptly* in every case may, nay, often will, make the difference between life and death. Experience has demonstrated that the "robust and strong" require prompt measures as well as others. The very fact that they are "robust and strong" may be the reason for a high grade of inflammation in the lungs, and damage to a vital organ, fatal in its results. To prevent such a consequence is of the greatest importance. To put the patient to bed in a well-ventilated room does very well, but *simple watching don't help without other more*

active means. I cannot approve of the administration of Dover's powder, or morphine, for the control of pain—it is like the ostrich sticking its head in the bushes—bromide is only a hypnotic, is not analgesic in its action, tends to upset the stomach, and to cardiac depression. The greatest merit in the Dover's powder is its diaphoretic action, which is decidedly increased if combined with quinine. Dr. Hare's suggestion as to alcohol in depressed cases is full of harmful possibilities; far better give the patient sustaining agents, such as caffeine, strychnine, active nutrition in the form of animal broths and hot milk. In "cardiac failure" the suggestion of aromatic spirits of ammonia and Hoffman's anodyne, is a reliance upon remedies of too feeble power; I do most heartily condemn the cold sponging, or local application of ice poultices under any circumstance; such treatment must be harmful. When collapse is profound, I fail to understand how benefit can come from the subcutaneous injection of normal salt solution; absorption is scarcely possible, and the general condition is primarily due to the depressed circulation from an overburdened and possibly enlarged heart. The method of treatment which seems to me most rational, is first to open the bowels with a good mercurial purgative, followed by an active diaphoretic of quinine and Dover's powder; then, full doses, of five to ten grains of carbonate of ammonia every two hours, in combination with some active expectorant like senega; turpentine stupes locally to area of affected lung, during the first stage. If pain is very acute, local dry cups over seat of pain. In the second stage, that of consolidation, the muriate of ammonia may be substituted for the carbonate; blister of good size (6 by 8 in.) over consolidated area, and strychnine nitrate (1-20 grain) every four or six hours as the condition of the heart

may require. Due care must be taken of the stomach, and an abundance of concentrated nutriment—liquid beef peptonoids with creosote, milk, and animal broths, be given. The tendency to death is by heart failure. The heart is pumping blood against a solid area, resulting in engorgement and dilatation of the right heart; renal complication is due to insufficient circulation and a condition of passive congestion. Hare says, “the tendency to death is due to relaxation of the blood vessels,” but the cardiac condition is back of this. The patient becomes cyanosed and the pulse feeble and rapid; the very common agent used in this condition is inhalation of oxygen gas. Why? It does clear up the cyanosis temporarily, but there is no aid to the heart to unload its engorged right ventricle, and relief, if any, is only temporary. The administration of the sulphate of sparteine, on the other hand, acts directly on the heart muscle, tends to aid the ventricle to throw off its engorgement, and improve the condition of the systemic circulation. Sparteine is an invaluable adjuvant to strychnine, and caffeine too is an agent of merit deserving our confidence. Sparteine not only slows the rapid pulse and causes increased tension and tone, but it modifies the function of respiration, making it fuller and slower, and gives the diseased lung some quietude and rest; it also acts upon the kidneys and tends to the relief of the renal, passive congestion. Sparteine has the power of making the irregular pulse fuller, steadier and slower, than any other known agent. I have had no experience with adrenalin, but would suppose it a very valuable agent in conditions of collapse, used hypodermically with strychnine. Of the exhibition of digitalis, I do not think very well; it is a remedy of uncertain action, and I would prefer to rely

on the remedies already mentioned, for sustaining heart action.

Such are my convictions, based on many, many, years of clinical observation and experience, and though I have not the much vaunted statistics as corroborative evidence, my results have been such as to make these convictions the strongest. It is said that "nothing lies like figures, except facts." This may, or may not, be so.

Iodine, and Some of its Uses in Surgery.

BY JOHN EGERTON CANNADAY, M. D., PAINT CREEK, W. VA.
Surgeon in Charge Sheltering Arms Hospital, Paint Creek, W. Va.

At present I may say the tendency in the use of drug agents is a return to the simple life. How often in such matters do we find ourselves traversing the circumference of a sphere, eventually returning to the starting point as that which is best after many strange wanderings into foreign lands, after numerous wild goose chases in pursuit of ideals that prove to be but phantoms and shadows.

It is interesting to the philosophical physician to note the rise and fall in popular esteem of a therapeutical agent. The pendulum swings now to this side and again to that. The agent in vogue today may tomorrow be a castaway. A remedy at one time much lauded may, under the impartial investigation of a profession at least partially freed from the thralldom of legendary authority, cease to be of value.

Iodine is an exceedingly active substance chemically and belongs to the halogen group. It possesses great affinities for many substances. Its exact use and sphere

of action in the body are unknown. Iodine was discovered by Courtois in the ashes of seaweeds in 1812. It occurs in certain mineral springs with chlorine and bromine. It enters largely into the composition of sea food and animals subsisting on this food contain their share of this evanescent substance. Gaillard found by animal experimentation that it could be absorbed by the skin quite readily and that this absorbed iodine has a tendency to accumulate in the brain and lymphatic glands. It makes the circuit of the body circulation in a short time. It is eliminated in the saliva, urine and feces.

Senn in his recent trip among the Esquimaux noted that iodine is liberally incorporated in the food of these people. He observed the remarkable absence of tumors of all sorts, the exceedingly benign course of syphilis, the absence of enlarged tonsils, lymphatic glands and goitre. He attributes this immunity to their use of iodized food. Many of the leaders in scientific thought have long held that this drug is one of the most useful contained in the pharmacopeia.

Sternberg, Senn, Koch, Schill, Fisher, Behring, Tavel and more recently Kinnaman have emphasized the value of iodine as an antiseptic. It is certainly the most powerful as well as the least harmful germicide we possess. In proper dilution it does not damage tissue but promotes phagocytosis and granulation. The general consensus of opinion of a large number of authorities is that iodine is of exceptional antiseptic value, being more effective in that respect than any of its compounds with the possible exception of some of its combinations with mureury. That iodoform is only of value by virtue of iodine being freed on coming in contact with the tissues. The weight of evidence easily proves that iodine and its congeners under proper conditions ex-

erts a well marked bactericidal effect on pathogenic germs. Besides being much more powerful it is far less toxic than bichloride of mercury or carbolic acid.

Kinnaman has performed an unusually elaborate and careful series of experiments with a view to the determination of the actual antiseptic value of the drug. He made use of a solution containing iodine 2.5 gms; sodium iodide 5.5 gms.; sterile water 250 c. c., making a one to one hundred solution.

A one to one thousand solution of bichloride acting on a culture of streptococcus pyogenes for fifteen minutes showed a good deal of inhibitory power for the first day but allowed a good growth of streptococci to appear. An exposure of thirty minutes however gave no growth. The superiority of iodine is readily evidenced by the fact that a comparatively weak solution (0.2 per cent) gave death to the streptococcus, after two minutes exposure. To iodine the staphylococcus is far more resistant than is the streptococcus. While it takes a one to two hundred solution five minutes to kill the former, a one to five hundred solution is fatal to the latter in two minutes.

The experimenter's conclusions are: That in a solution of iodine varying from 0.2 to one per cent. we have a germicidal agent of marked potency. Its bactericidal power is far superior to bichloride of mercury, the acknowledged leader of all antiseptics. That a 0.5 per cent. solution is amply strong enough for all practical usage. A 0.3 per cent. solution of the trichloride of iodine in water destroys bacteria in a short time according to Reid.

Florsheim highly commends the painting of the inflamed area in acute amygdalitis with the undiluted tincture; when marked improvement has resulted in

twenty-four hours it is not renewed, when little or no change has taken place a second or third application may be necessary.

The tincture has been used as an injection in the treatment of anthrax with some success. In the treatment of actinomycosis and blastomycosis the administration of the drug by cataphoresis makes it much more effective. It is also administered hypodermically and internally in the above conditions.

Iodine was a valued remedy in the treatment of tubercular conditions long before the bacillus of tuberculosis was discovered. It has been used as an injection in and around tubercular joints. A solution of this drug has been used in tubercular joints much after the manner of using iodoform, leaving one or two drachms of a one-half of one per cent. solution behind.

Von Bruns introduced iodoform to the world as a remedy for tubercular arthritis. Since then it has enjoyed a wide range of popular favor. Senn states that the injection of iodoform glycerine emulsion into a tubercular joint is, if sufficient, usually followed by a prompt response in the way of a rise of temperature, also by swelling of the joint. This is the usual response to the presence of an antibacillary substance in contact with the synovial membrane. He considers this emulsion of the greatest value in such conditions. He uses it also in para-articular abscesses. He cautions against the danger of allowing the tubercular process to become the seat of a mixed infection. He says that as soon as the pus microbe invades the cavity the therapeutic action of the iodoform is lost.

It is in deeply seated cold abscesses in individuals of lowered resistance that injections of iodoform emulsion or of iodine are of most value. These patients are often unable to bear radical surgical procedures. The

iodoform may be used suspended in glycerine or oil or in an ethereal solution. The oil or the glycerine should be sterilized by boiling, and the iodoform by submersion in one to one thousand bichloride for four days. The drug is used in strengths of from five to twenty per cent. and the amount allowed to remain in the cavity varies from one drachm to two ounces.

I had on one occasion a patient who had several tubercular abscesses in the muscles of the chest and back in addition to many signs of lung involvement. I evacuated these abscesses through small incisions made with a sharpened pointed bistoury, injected a sterile ten per cent emulsion of iodoform in olive oil and closed the small openings by suture. These abscesses were left undisturbed for two or three weeks and the iodoformization was then resumed. This treatment in conjunction with appropriate dietetic, hygienic and medicinal measures produced a marked improvement, the sweats, fever and cough disappeared, the patient increased markedly in weight and in the course of three months was apparently well.

In the treatment of goitre Hunter McGuire of Virginia used iodine by cataphoresis with much success. Roy has found much good to be derived from the internal use of any preparation of iodine with thyroid or thymus gland extract in goitre. The same author uses the biniodine of mercury ointment externally and injects tincture of iodine into the substance of the goitre, twenty or thirty minims at a time at intervals of four or five days.

The iodine treatment of puerperal sepsis was first proposed by Alloway in 1883. He advocated the introduction within the uterus of suppositories containing from .65 to 1.3 gm. of iodoform night and morning. His "idea being to replace the frequent and often un-

satisfactory intra-uterine injection of antiseptic fluids.” He reports three successful cases. Boardman in 1884 reported a successful case in which he employed iodoform insufflation within the uterus. To the late Dr. Pryor of New York belongs the honor of having placed this method on a scientific basis which is I believe unassailable from a deductive as well as a resultant point of view.

He curetted and irrigated the uterus then packed its cavity with ten per cent. iodoform gauze, the cul de sac of Douglas was opened and five per cent. gauze was packed around the uterus, at the end of a week this was removed and replaced by fresh gauze. The packing was removed from the uterus in three days and was not as a rule replaced. The iodine reaction in the urine was demonstrable in from three to five hours. Pryor reported thirty-seven cases in which this method of treatment was adopted. Twenty-seven of the patients had not been operated on previously and but one died; ten had been curetted before coming under his observation and three of these died. He says that in most cases infection spreads by way of the lymphatics and states that “That method of treatment which secures sterilization of the original wound and accomplishes the absorption by the infected lymphatics of a potent yet harmless antiseptic, if at the same time accompanied by such treatment as will promote the eliminative functions will succeed best.” It is well to state here that the affinity of the protoplasm of the leucocyte for iodine has been thoroughly demonstrated by Goldberg, Weiss and many others. It increases leucocytosis, promotes vascularity and stimulates granulations.

The filling of cavities in bone due to operation or disease, with the iodoform wax filling of Von Mosetig-Moorhof has been productive of the happiest results.

He uses; finely powdered iodoform, 60 parts; spermaceti and oil of sesamum of each 20 parts.

This mixture is fluid at 132 F. The cavity to be filled must be thoroughly clean and dry, every part of the cavity should be permeated by the mass; drainage is not usually necessary but if thought advisable can be accomplished by the insertion of narrow strips of rubber tissue. This filling is for temporary use only, and is either pushed out by the growth of new tissue, or if the wound heals by first intention it is absorbed in time. The filling is well borne by the tissues, the pulse and temperature sometimes increase, but usually for only two or three days. Toxic symptoms are rare. This method gives its best results in cases of chronic circumscribed osteomyelitis, tuberculous osteomyelitis and the acute form attended by necrosis.

Langenbeck made use of the trichloride of iodine in the treatment of tubercular cystitis.

Numerous surgeons have found iodine of great value in the various inflammatory diseases of bones, joints and serous cavities.

Perhaps no drug has such universal use in any one condition as has iodine and its compounds in the treatment of the effects of syphilis. Rather recently iodopine, a solution of iodine in oil of sesame was introduced by Winternitz for hypodermic and internal use in tertiary syphilis.

Aumond and Bonnaire use the following formula for an irrigating solution; iodine gms. 3; potassium iodide gms. 6; water 1000 gms. They make use of the pure tincture as a local application prior to curettage as a means of partially sterilizing the inside of the uterus. Many of the old time gynecologists were in the habit of making an application of the plain tincture to the inside of the uterus after curettage.

Iodine in weak solution as an irrigation is of much value in the treatment of suppurative conditions as, suppurative arthritis, abscess, empyaema, etc. I have several times used a one per cent. solution in the treatment of suppurating sinuses and wounds with the result that there was a prompt disappearance of pus and an abundant formation of healthy granulation tissue.

As an irrigating solution one to one thousand is a suitable strength.

After operative work about the genitals and other parts where a dressing cannot be well kept clean, I have often used an ointment containing sterile iodoform and petrolatum as a protective, with the result that primary union was secured.

Surgeons as a rule place much confidence in iodoform gauze as a protective packing in operations in the mouth, rectum or vagina.

Gross and Lobit believed tincture of iodine to be a specific in the treatment of facial erysipelas. It is now several times used a one per cent. solution in the treatment considerably used in this and other forms of superficial lymphangitis as a local application in strengths from one-fourth of one per cent. to one per cent., according to the susceptibility of the skin.

This drug will be found to be a most excellent disinfectant and deodorant to mitigate the offensiveness of the discharge from a broken down cancer or other neoplasm.

Kidney insufficiency predisposes to iodism, which is no doubt due to the local action of the drug at some of the more sensitive points of elimination.

After all it must not be forgotten that this the most harmless of antiseptics and its compound iodoform are active agents and as such should be used with caution. They are under certain circumstances powerfully tonic.

It is after injection into serous cavities that the most serious results are seen. The pyogenic membrane lining the tubercular or pus cavity seems to possess the power of immunity to a marked degree. The old and enfeebled patient will be much more susceptible to the poisonous action than the more robust. It is a well known fact that an individual suffering from septic infection will tolerate much more iodine without the symptoms of poisoning than one under normal conditions. Rarely there are found cases having so marked an idiosyncrasy for iodoform that it will act as a poison when exhibited in the usual manner in small amounts. H. McN. Jones reports a case of a woman who after abdominal section had a pad of iodoform gauze placed over the wound. The third day irritation and smarting were noticed. The following day the gauze was removed, the irritation having increased, vesicles appeared on the hands, arms and legs without constitutional symptoms. Personally I have seen two cases of local dermatitis due to the use of iodoform gauze. One was an old anaemic man and the other had had the skin of the affected region previously irritated by a solution of carbolic acid. We should not however lose sight of the fact that patients have idiosyncrasies for other drugs besides iodoform. I have seen on several occasions a severe dermatitis set up by the local application of the usual solution of bichloride of mercury.

Roux first made use of tincture of iodine in hand disinfection using it for the finger tips to penetrate the subungual spaces and the nail folds. Von Mikulicz used it in the same way and Senn uses it for that purpose introducing it around these crevices with a nail brush. For several months past I have used a one-half of one per cent. alcoholic solution for purposes of hand disinfection preliminary to operative work in all cases in

which rubber gloves were not worn. The same solution is made use of in the preparation of the site of the operation incision. I wear rubber gloves as a routine measure in operative work but in a certain number of these cases gloves are undesirable, again in an occasional septic case a glove may be punctured or torn and the operator feels the need of some reliable antiseptic for his own sake as well as for the protection of his future patients. The use of this solution simplifies the technique and saves time. The method I practice is this: first thorough scrubbing with nail brush, green soap and running hot water, go over the hands in a systematic and methodical manner, take each part in its turn, always follow the same order so as to skip no part. Pay particular attention to the nail folds, subungual spaces and the skin between the fingers. Clean under short clipped nails with a good heavy metal nail file, then scrub hands again, wash off soap in running hot water, remove residue of soap with seventy per cent. alcohol, immerse in iodine solution for five minutes, rinse in sterile water. The light brown stain can be removed by washing in dilute ammonia water after operations, or if left alone will soon disappear.

The results clinically of this method have been superb. In a long series of cases no infection attributable to the hands has occurred.

In conclusion I would say that iodine constitutes a near approach to a perfect antiseptic in that it is non-toxic in effective strength, being one-fourth as poisonous as bichloride of mercury, though many times more valuable as a germicide. It does not coagulate albumin or form inert compounds with the tissues. It possesses great penetrating power, is easily prepared and is stable.

A solution of iodine is the most practicable chemical agent we have for the sterilization of the skin.

BIBLIOGRAPHY.

- SENN: *Surgery Gynecology and Obstetrics*, July, 1905.
 Ibid *Journal*, A. M. A., March 28, 1903.
 KINNAMAN: *Journal*, A. M. A., Aug. 26, 1905.
 SENN: *Journal*, A. M. A., Nov. 18, 1905.
 ROY: (*Ind. Med. Gazette*).
 VON MOSETIG-MOORHOF: *Zeitschrift für Chirurgie*, lxxi, No. 5.
 BERARD & THEVENOT: (*Revue d'Orthopedie*), July, 1904.
 JONES: *Medical Press and Circular*, Feb. 24, 1904.
 SENN: *Medical Standard*, Feb., 1904.
 BURTENSCHOW: *American Medicine*, March 11, 1905.
 PRYOR: *New York Medical Journal*, Jan. 23, 1904.
 HARRINGTON: *Boston Med. & Sur. Jour.*, 1903, vol. cxlviii, pp. 445-439.
 BURGESS: *Lancet*, London, 1900, vol. 1, p. 1798.
 STERNBERG: *American Jour., of Med. Science*, 1883, vol. lxxxv, pp. 321-343.
 CABBOT: *Boston Medical & Surgical Journal*, 1879, vol. ci, p. 75.
 BLYTH: *Proc. Royal Society, Edinburg*, 1884, vol. xii, p. 638.
 HARRINGTON: *Boston Medical & Surgical Jour.*, vol. cxlviii, p. 551.
 SALZWEDEL & EISNER: *Berliner klin. Wochenschr.*, 1900, vol. xxxvii, pp. 496-500.
 GIBIER: *Verhandl., d. X., International Congress*, 1890, Berlin, 1891; V. 15 Abth., pp. 124-125.
 SHAW: *Journal Hygiene*, London, 1903, vol. iii, p. 162.
 POTTEVIN: *Annales de l'Institute Pasteur*, 1894, p. 804.
 CHAMBERLAND: *Acad. de Science, Paris*, 1883, vol. xcvi, p. 1068.
 STILLING: *Lancet*, London, 1891, 1, p. 872.
 HEBERT: *L'art Med.*, Paris, 1896, vol. lxxiii, pp. 176-193.
 JUNOR: *Edinburgh Medical Journal*, 1866-7, vol. xii, p. 684.
 HARRINGTON: *Boston Medical & Surgical Jour.*, 1904, vol. cl, p. 43.
 VAN BUREN: *American Medicine*, 1903, vol. vi, p. 1021.
 PFEIFFER: *Berliner klinische Wochenschrift*, 1903, vol. xl, p. 641.
 FORTESQUE-BRICKDALE: *Bristol Medico-Chirurgical Jour.*, 1903, vol. xxi, p. 343.
 MARX: *Centrabl. f. Bacteriol. Jena.*, 1902, vol. xxxiii, p. 75.
 COPEMAN: *Rep. Brit. Assn. Adv. Sc.*, London, 1896, p. 987.
 ROSENBERGER: *American Medicine*, 1904, vol. vii, p. 1021.
 HEYN & ROVSING: *Fortschritte der Medicin*, 1887, Bd. v, pp. 33-47.
 RIEDLIN: *Arch. f. Hyg. München. U. Leip.*, 1887, vol. vii, p. 310.
 BAUMGARTEN: *Berliner klinische Wochenschr.*, 1887, Bd. vol. xxiv, p. 354.
 KRONACHER: *Münchener Med. Wochenschrift*, 1887, vol. xxxiv, p. 545.
 BUCHNER: *Münchener Med. Wochenschrift*, 1887, xxxiv, p. 465.
 KUNZ: *Arbeiten a. d. Pathologische Institut. Zu Königsberg*, 1887.
 SCHNIRER: *Wiener medicin. Presse*, 1887, Nos. 36-38.
 LUBBERT: *Fortschritte d. medicin*, Bd. v, 1887, pp. 330-345.
 TILANUS: *Münchener medicinische Wochenschrift*, vol. xxxiv, p. 309.
 MIKULICZ: *Langenbeck's Arch'v*, vol. xxvii, pp. 196-239.
 MAYLARD: *Annals of Surgery*, 1890, vol. xi, pp. 17-33.
 STCHEGOLEFF: *Arch. de med. exper. et d'Anat. Path.*, 1894, vol. vi, pp. 813-837.

- VINKE: St. Louis Courier of Medicine, vol. xiii, p. 125.
SORMANI: Riforma Medica, 1890, January, pp. 11-13.
PRYOR: New York Medical Journal, 1903, vol. lxxviii, p. 356.
DAVAINE: Dictionaire Encyclopedique des Sciences med. p. 335.
WHITE: American Jour. of Obstetrics, 1904, xlix, p. 763.
DAVAINE: Bull. Acad. de med., 1880, 2 S., vol. lx, p. 763.
SEREINS: Union Med. Paris, 1887, 3 S., xlv, p. 470.
BROCHIN: Gaz. d. hop., Paris, 1880, vol. liii, p. 1010.
GAUCHER: Ann de Derm. et Syph., 1903, 4 S., vol. lv, p. 847.
-

Tumor of the Caecum and Ascending Colon, Removal and Recovery

BY A. B. KNOWLTON, M. D., COLUMBIA, S. C.

The subject of this paper was a lady fifty-six years of age. On account of her extremely feeble condition it would have been fatal to her to have done at one time the radical surgical procedure which would have been necessary in order to render her cured, therefore what might be termed *intermittent* surgery was resorted to. Four separate and distinct abdominal operations, at intervals of about six weeks, were performed upon her with an ultimate result in restoration to health.

She was admitted to my infirmary as the patient of Dr. E. J. Wannamaker of Columbia, S. C., weight about ninety-six pounds, unmarried, emaciated from twenty years of gradually increasing intestinal obstruction. No bowel movement could be had except in response to patient, persistent and painful effort, both by enemata and by powerful purgatives. In consequence patient's suffering has gradually increased—each exacerbation becoming more and more pronounced till her condition is that both of physical suffering and mental anguish, which only slowly increasing intestinal obstruction can

induce. The abdomen was enlarged from chronic gaseous distention and fecal retention. Through the thin parietes could be plainly seen the peristaltic waves in their oft repeated attempts at emptying the bowel of its contents. The patient periodically eructated quantities of gas and vomited nearly all liquids and nourishment. Anodynes gave her her only relief, except occasionally when in response to cathartics and by dint of much suffering a few drams of fecal matter would pass. There was a mass in the right iliac region extending upwards in the direction of the right kidney. Patient was surely but slowly failing and operation which Dr. Wannamaker requested me to perform was done for the first time on September 30th, 1904. On account of her condition nothing more was anticipated than the relief of possible constricting bands of adhesion or perhaps the evacuation of any fluid that might be encysted. The tumor proved to be one of the head of the caecum and the ascending colon, surrounded by a mat of intestinal adhesions throughout its extent. The patient being unable to endure a radical operation a right inguinal ileostomy should undoubtedly have been performed, but having promised before operation not to leave her with an artificial anus under any circumstances, we were compelled to content ourselves with snipping a few adhesions and closing the abdomen.

To our great surprise the patient evidenced remarkable recuperative powers and although the obstruction was not in the least degree removed she was still alive at the end of two weeks. At this juncture, patient consented to an artificial anus provided we promised to do a still subsequent operation and remove it. Accordingly—on October 15, 1904—the second laparotomy was performed and a right inguinal ileostomy established. The incision was made in the line of the preced-

ing one, and a loop of ileum two inches from its termination in the caecum was brought out and suspended upon a glass rod by running the same through the mesentery after the manner of Grieg Smith and the redundant incision closed. In twenty-four hours the ileum was opened. The relief from suffering was just what would have been expected. Magic! Recovery was rapid, appetite returned and patient was given six weeks in which to go home and recuperate. At the end of this time she returned much increased in weight, looking well and according to her statement, feeling better than she had in ten years. A third abdominal section was performed on December 28, 1904. Incision was made in the left inguinal region, and the ileum was resected (intra abdominally), two inches from its termination in the artificial anus. The distal end was inverted and closed by a silk purse string suture. The free proximal end was implanted by Murphy button into the lower end of the descending colon just above its passage over the pelvic brim—the operation constituting technically a left inguinal ileo-colic implantation. It was with some hesitancy that the Murphy button was used in this procedure as the colon was so narrowed and shrunken from years of comparative disuse that it was at first doubtful whether or not the button could ever pass through. It was, however, finally adopted. The bowels moved naturally in forty-eight hours. The patient said this was the first natural and comfortable bowel movement she had had in approximately fifteen years; button was passed on the twenty-second day. Nothing thenceforth passed through the artificial anus but an occasional drop of mucous and patient was dismissed for another holiday.

On March 31, 1905, she returned in excellent condition, the fourth and last laparotomy was done, the old

scar of the first two operations in the right iliac fossa was dissected out and the abdomen opened. Many old and dense adhesions were broken up and the caecum, with the appendix buried in a tumorous mass, the entire ascending colon up to and including a portion of the hepatic flexure, and the four inches of ileum leading up to the ileo-caecal juncture constituting the artificial anus all removed in one mass. The distal end of the hepatic flexure was inverted with silk purse-strings. The abdomen was closed and on April 28, 1905, the patient was dismissed without obstruction, without tumor, and without artificial anus and in excellent health and comfort.

Owing to an oversight the microscopical nature of the tumor was not determined, but from the history of the case, the absence of mesenteric lymphatic involvement, the macroscopical appearance of the growth together with the subsequent conduct of the case, I believe that there was nothing malignant. I judge it to have been a fibro-lipoma. Operation, however, was just as essential as if it had been malignant. For a distance of six inches the caliber of the ascending colon through the tumorous mass was reduced to the size of a goose quill.

This case emphasizes the value of intermittent surgery in certain intestinal conditions where there is a neoplasm, stricture, volvulus, or other obstruction to be removed and where the patient's physical condition debars an immediate radical procedure. A quick, clean enterostomy or colostomy in these cases is indeed one of the most valuable resources known to surgery. Whether the obstruction be acute or chronic, when the patient's ability to endure a radical operation has long since vanished, a timely opening of the bowel just above the seat of obstruction is a procedure to which every

such victim is most honestly entitled. By this means the patient is immediately given a respite from his suffering and an opportunity to gain sufficient strength for whatever radical operation should be attempted at a later date.

Another point which this case illustrates is the marked "resisting power" so often evidenced by those who have been invalids for years. There is no doubt that old chronics oftentimes show a most remarkable ability to withstand the exhausting effect of surgical procedure. The intestine from long continued over-distention from gas has acquired a degree of toleration which is truly astonishing. While from chronic fecal retention there result a degree of acquired immunity from intestinal toxæmia which undoubtedly contributes largely to the actual recovery of these cases after operation. These facts should not be lost sight of in estimating the probable termination of any prospective operation upon such cases. It must ever be remembered, however, that in *acute* and *recent* obstructions the effects of gaseous and fecal distention are quite the opposite. In a subject who is accustomed to daily normal bowel movements obstructive retention cannot but result in a deleterious amount of auto-intoxication, while the sudden unusual and persistent gaseous distention is sure to induce a degree of intestinal paresis, which even after the relief of the obstruction, may be sufficient to produce death.

There is another very great danger coincident with acute (not chronic) intestinal obstruction—I refer to acute post-operative dilatation of the stomach or gastrotosis. This condition is rare but dangerous—it has been ante-mortemly diagnosed only twenty-seven times. It is usually the result of delay in operation. It is ushered in and accompanied by the most horrible pain

conceivable. It is easily relieved by gastric lavage, and has a high mortality rate if untreated.

Thus it would seem that in *chronic* cases, the intestinal canal is one of the most tolerant of all the abdominal organs. While in *acute* conditions, especially acute obstruction, it is one of the most easily damaged.

All intestinal neoplasms should be operated upon *early*, for whether malignant or benign the inevitable tendency is toward obstruction. The condition is strictly surgical. Palliative treatment leads only to a lowered vitality, and an increasingly difficult operation. In view of the prompt and kindly healing of every portion of the intestinal tract, the operative outlook in regard to this organ is one of the brightest of modern surgery.

An Interesting Case of Contracted Pelvis Relieved by Caesarian Section.

BY C. B. EARLE, M. D., GREENVILLE, S. C.

The case that I have to report to you today is interesting, not because of any original operation that I have devised, nor because of novel or unusual methods of treatment, but on account of the unusual size of the patient and the comparative ease with which the child was carried almost to full term and the freedom from complications during convalescence.

I was called to see Mrs. B. on the 2d of last November by Dr. T. T. Earle, to whom I am indebted for the case. She was suffering with severe abdominal pains and was having strong uterine contractions; the cervix

was slightly dilated and there was some little hemorrhage from the uterus. She was moved to the Greenville Sanitarium, where she was put to bed and kept until the subsidence of the uterine pains. She remained under my care until four weeks after the birth of her child.

Family History.—Both parents are living and in good health. The parents are each between five feet and five feet six inches tall and are stoutly built. Grandparents were of normal size. She has four brothers and five sisters, all about the average size and all in good health. Had one sister to die in infancy of whooping cough. Her mother miscarried twice, labors otherwise normal.

Personal History.—Is twenty-three years old. At birth was very small, but does not know exact weight; at fifth week weighed five pounds. At eighteen months was smaller than an infant brother recently born. She had diseases of childhood, none serious. Had typhoid fever in 1892, when she was sick for several months. In 1903 had pneumonia and was six weeks in recovering. At one time was employed as a school teacher, but for the last few years has been with different theatrical companies. Since last April has been with a street carnival company. She was married last April. Menstruation has been regular since it was first established. April 30th was the date of last menstrual period. Quickening was first noticed August 30th.

Physical Examination.—Height thirty-four inches; weight thirty-nine pounds; blonde; all faculties normal; intelligence above average; erect; above waist parts well formed but small; below waist very small and poorly developed, more like a young child than a woman twenty-three years old. Heart, lungs and kidneys normal. As the foetus developed the uterus enlarged from side to side and anteriorly. At time of her operation fundus was at a lower level than it was four weeks be-

fore. The lower ribs were flared widely to give room for the enlarging uterus. Measurements: External conjugate or diameter of baudelocque was 5 5-8 inches.

Distance between iliac spines 8 1-8 inches; distance between iliac crests, 8 3-4 inches; distance between trochanters, 9 1-4 inches; oblique conjugate 2 3-8 inches; distance between tuberosities of ischium, 2 inches.

Child was lying transversely: head to right, back to front. Waist measured at most prominent part thirty-four inches; from symphysis to ensiform cartilage was thirteen inches.

Operation was done January 16th, with incision through linea alba, uterus opened by vertical incision through anterior surface; membranes were ruptured and child delivered, assistant compressing the uterine arteries all the while. Cord was cut, membranes and placenta removed; cervix was dilated from above. Uterine incision was closed with continuous catgut sutures; abdominal wound with interrupted silk-worm gut stitches. Stitches were removed on the eighth day, union by first intention. There was an easy convalescence without complications excepting that from the fourth to the ninth day there was an afternoon rise of temperature of from one to two degrees, highest on the fifth day when it reached 100 3-5 degrees; morning temperature was normal. There was no other sign of infection. Pulse fell steadily from 120 to 90 on the ninth day.

Child weighed at birth 4 pounds 8 ounces; at four weeks weight was 5 pounds 10 ounces; was well formed. For first ten days there was no milk in breasts but since then the amount has steadily increased until at time of leaving Greenville, at least a third of its nourishment was obtained from its mother. Patient

left on the 29th day for her home in Nebraska, carrying her daughter with her, both in good health.

My reason for doing a hysterotomy instead of a Porro operation was because of the earnest solicitation of the patient who insisted upon the uterus being left, notwithstanding the dangers of future pregnancies were explained to her and the additional dangers of leaving the uterus in causing postpartum hemorrhage and also increasing the danger of infection.

The father of the child is also an interesting little man, being forty-two inches tall. His body is well formed above the waist and very muscular. Below the waist he is small and poorly developed. His parents, like his wife's, are of average size, as are his brothers and sisters.

The Educational Factor in the Crusade Against Tuberculosis.

BY F. J. CLEMENGER, M. D., ASHEVILLE, N. C.

The value of education by organized effort is so apparent in the crusade that is now being waged against tuberculosis, that the question of immunity pales into insignificance when compared with the work the organizations are trying to accomplish.

That the mortality of tuberculosis has been rapidly lessened, in the adaptation of the common sense lines of treatment now in vogue, is unquestionable, but it will have little effect as compared with the far-reaching work now being promoted by the tubercular organizations along educational lines.

It will matter but little whether von Behring has a cure or whether the already infected cases die, as compared with the conditions which are bound to exist in a few years, if this crusade of education fails to make the impression it should in the laymen's mind.

Had we only those already infected with this disease to deal with the question of education would resolve itself into one of concentration on cure. But the already infected cases are vastly in the minority of those who should be educated against this disease. It is the man, woman or child who has never had occasion to give this disease a thought who are in the majority, and who must be educated against the practices which predispose them to this disease, and must become familiar with the conditions which will enable them, as near as possible, to minimize the probability of their infection.

The conditions which exist today are the result of the failure of those already infected, at some time in life, to have appreciated the importance of predisposing causes, rather than the actual exposure to infection, or many more of us would now show manifestations of active tubercular trouble than do.

At some time in life, or many times in life, unless one lives a recluse, we have all been exposed to this infection, and one cannot help but realize how vastly more important the conditions are, which today permit an individual to render innocuous an ingestion of tubercle bacilli, and tomorrow causes him to succumb to their activity, developing manifestations of localized tubercular infection.

Many of us at different times in life have ingested food products which, if Von Behring's theory of latent infection through the intestinal tract is true, lends a special importance to the value of resistance power and

the question of lowered vitality of the most susceptible tissues becomes particularly important in the education of those individuals who have a bad family history before them.

It has probably been a God-send to humanity that the medical profession for ages considered this disease an hereditary one, else the precautions would never have been taken in many cases to change the environment of the offspring of tubercular parents. And though the offspring was in many cases probably infected early in life from superabundance of ingestion of tubercle bacilli, through ignorance of the parents, yet the change of environment probably raised the resistance power so that the infection was entirely destroyed or the latent infection never became an active one.

If those who made it possible for their fellowman to acquire this disease could, at the earliest moment of their becoming a source of danger, be informed of this ability to transfer the disease to others, we could concentrate our energies on the education of their duty toward humanity, but many of these poor unfortunates failing to realize the cause of their illness, because of its insidiousness and that they are in the grasp of something other than a protracted cold, spread a tract of possible devastation and horror behind them, until from inability to longer perform their task in life or recognition by family or friends of a serious condition, they seek the advice of one competent to inform them of their true condition.

In many of these cases the damage to friends and loved ones has already been done by the time they become aware of their true condition. Too often we see in suitable time manifestations of what was for years considered foreordained by the law of heredity develop in the brother, sister or relative with bad ancestry, but

which we now know was not only preventable in the subsequent cases by education as to the value of resistance, but preventable, and curable, in the primary source of these infections.

Heredity and environment have lost none of their importance because of our practically settled views concerning them, except that heredity continues to be important in this disease, only when associated with an environment which subjects the offspring or relative to a possibility of infection and the nearer we come to the elimination of exposure to infection and raising of the resistance power, that much nearer do we render the question of heredity unimportant.

Marriage of the consumptive in relation to future generations is only actively important in the ratio with which the offspring of such marriage is subject to infection after birth, because of the inability of the parent to completely change the environment of the offspring, but this becomes an important factor if the social scale prevents such change.

The chances such offspring has in the fight for an existence are very slight when one realizes that if not directly infected by the habits of the parents, the probability exists that lowered resistance, accompanied by diseases of childhood, will soon be the means of making possible a tubercular infection which, if in an uninfected family, would never occur. This danger relatively increases the lower we go in the intellectual scale, and it is my belief that some legislation should prevent the marriage of consumptives, who from lack of intelligence or means are incapable of removing their offspring from this probable source of infection. This factor will relatively increase as time goes on until we have discovered the specific cure or perfected the prevention by immunizing inoculation on account of the

great number of cases which, under present methods of treatment, will resolve themselves into chronic ones rather than cures or deaths, thereby prolonging the danger of infection in an offspring unable to separate itself from the infected organism responsible for its birth. The value of what can be accomplished by education is best illustrated if we continue the life history of such offspring warned by family history that tuberculosis is the greatest enemy he will have to combat in life.

Fresh air and sunshine are natural enemies of this disease and from earliest infancy this product of weakened parents must learn to live in close communion with his greatest allies. From earliest life the value of proper nutrition must be impressed upon him as his next best friend, and regulation of the habits which systematically rid the body of its waste products, are equally important. The question of not acquiring elsewhere the infection which he may have been exposed to at home must be vividly impressed upon his mind.

As a school child he must be taught as one writer has put it, "that the mouth was intended to receive only food and water; that pockets were intended to carry coins in and not the mouth; that lead and slate pencils are not to be wet with saliva; that chewing gum and apple cores are never to be traded; that candy passed round for a bite is bad candy; that good manners forbid one's drinking from another's cup until it is washed; that no one with good manners will expectorate elsewhere than in the cuspidor." And then as the child reaches the age where greater learning can be absorbed, teach him the names of many of the diseases that are contracted by failing to be guided by the things just mentioned, and when he has reached the age where a student is taught the first rudiments of physiology and hygiene, let those

works be so amended that he will be taught the reason why his failure to carry out the things he was taught in childhood might result in his acquiring a disease that is to be feared by all mankind. Teach him that bacteria exist; that contagious diseases are communicated in many ways he never thought of; that cleanliness of body and linen are essential to good health; that he will never be a success in life without good health; that other diseases make him more susceptible to tuberculosis; that indoor occupations are not to be chosen as a life-work except by the hardiest; that alcoholism is an easy road to consumption, and teach him that his companion who expectorates on the school-room or home floor is a dangerous companion and unfit to associate with. Then when he has reached adult life because of this teaching he will probably be free from the disease which has been his greatest menace.

This is but a part of the work tubercular organizations can accomplish, but in the public school system lies the greatest hope for the prevention of this disease to future generations.

Those who have passed the school age must also be reached if we hope to accomplish great good, and there is but one way in which this can be done: through the public press.

The immense numbers of people who must be educated against this disease can only be reached by systematic efforts on the part of organizations through the newspapers, and in the county organization we have the means of rapidly enlightening the masses as to the real truth about this disease. Each society should have a permanent committee on the prevention of tuberculosis, who could from time to time publish the articles written in untechnical terms, and thus as the public school system lends authority to the child's education, so will

these articles published by an official committee lend authority to the education of the masses who can read nowhere else the truth about the "Great White Plague."

The Modern Mastoid Operation.

BY E. W. CARPENTER, M. D., GREENVILLE, S. C.

Every specialist who has a hobby is often a dangerous man and one on whom the conservative physician must hold the lines. But a greater menace to a community are those physicians who prescribe sweet oil and laudanum for ear ache and later with all honesty, tell parents the child will outgrow its P. O. M. If they said it will probably outgrow the child, they would have better reasons for their air of wisdom.

As a life saving measure, few operations equal, and probably none surpasses the modern mastoid. Recent progress in the surgery of this region has been brilliant and the aurist has, by a ceaseless, conscientious application, kept in the foreground of his science.

It is only in late years that the prevalence of mastoid diseases has forced on the public and general practitioner, an interest in a degree commensurate with its importance. Now the aurist is early sought, instead of waiting until the stress of imperative necessity demands him.

It is not long ago that general surgeons laughed at specialists as pretenders, when the employment of the knife was necessary, and there was some justice in their attitude.

It spurred the hesitating aurist to the necessity of more accurate anatomical and technical knowledge and today eminently satisfactory methods have replaced the inadequate ones of a few years back.

Another factor which has contributed to our present state of perfection, is the education of the public to the benefits of specialism, people who used to seek "another doctor" when the use of the knife was suggested, now readily acquiesce and accept institutional attention, which means much in contributing to the final result.

In the light of the history of this operation, we must acknowledge our indebtedness to our ancient predecessors for much sound wisdom and medical learning. Some of their methods differed but little from ours of today, *i. e.*, in the fifth century, B. C., Hippocrates advised for A. O. M., "local blood letting and the instillation of warm mild drops into the ear, the application of steam, a cathartic and absolute rest." For C. O. M. P., he recommended "warm irrigation, followed by the use of astringent drops, especially the acetate of iron." These remedies differ in no material respect from our present day treatment. He also advised "the removal of aural polypi."

The first period in the history of the mastoid marks the era when surgical measures were used from a casual knowledge and can be called the experimental stage. This was previous to 1864. The modern operation dates from then until the present.

In 1656, Rolfinck first suggested the artificial opening of the mastoid. In 1677, Riolan advised a similar procedure for cure of deafness and tinitus. Valsalva, in 1740, utilized the spontaneous opening of the mastoid as an agency for the cure of otorrhoea by syringing through the fistula into the tympanum.

The priority for *making* the first artificial opening in the mastoid belongs to the French surgeon, Jean Louis Petit, 1674.

The operation suffered many vicissitudes until 1791, when the Danish court physician, J. J. von Berger, was operated on by Kolpin for the relief of tinitus. The operation was a failure and on the thirteenth day after it von Berger died of purulent meningitis and sinus thrombosis.

Again in 1824, we find Webber operating without success; this date marks the end of the period in which the operation was practiced empirically and inaugurates the era in which we are proud to share. But we can never pay the debt which we owe to that countless number of silent workers all along the line, who have relieved their thousands, and helped to perfect this branch of medicine until it stands a glorious monument, erected in the nineteenth century.

To the labors of Jean Gaspard Itard, 1773-1858, belongs the credit of placing treatment of ear diseases in the specialties.

It is noteworthy that during the infancy and development of the operation we find no English contributors of note, except Sims in 1787 and Sanders in 1808, but since the middle of the last century, we find Toynbee and Wilde, whose "incision" became famous, and is even now practiced, though its benefit is limited to those cases of periostitis in children, it demands, as a general measure, the serious consideration of many specialists.

The first American surgeons to revive the opening of the mastoid cortex for suppuration were Turnbull and Crosby, 1864, the latter using no other instrument as a perforator than an ordinary gimlet.

In 1885 the Schwartze operation had entirely superseded the crude technique of the earlier operators, and

yet this operation depending on the use of chisels, gouges and curettes, must have been crude when compared with the modern technique of this century.

The advent of the Ronguer has facilitated more than any other invention, the ease, safety and perfection of the present method over the description of the original by Schwartze.

Before the adoption of this method New York furnished some prominent men who relied on the trephine and after working it in a direction inward, upward and forward, to a depth of 22 centimeters, abandoned the trephine and resorted to probe or small curett and if at this depth they failed to find pus or the antrum, the operation was abandoned with the hope that the pus would find an escape externally.

I have no means of knowing how many of these cases where the antrum was undiscovered, ended fatally or whether their last condition was worse than the first, but I do know that no progressive aurist of today would consider such an operation complete until he was satisfied the antrum did not exist, whether from proliferative, ostietis, or congenital absence.

Dr. Gruening of New York, was the first to advise and practice the "complete removal of the mastoid tip in all cases where the suppuration had extended beyond the antrum and involved the body of the bone."

In regard to modern technique, there is no use for me to dwell at length on the different steps. I insist though, on the skin incision being sufficiently long, with a posterior arm, the flaps carefully retracted with the periosteum attached, which is readily done by the use of Langenbeck's elevator. This is fashioned like a hoe with a sharp edge—it is an ideal instrument.

The whole working field should thus be first exposed and if conditions demand it, a continuation of the pri-

mary incisions will always be sufficient to expose diseased areas, no matter how extensive, or in what direction they extend. These ample flaps heal speedily, leaving less deformity than the single incision with its deep sulcus, over which there is generally a more marked depression and more frequent demand for grafting during the lengthier healing process.

To Gruening's practice of completely removing the tip I would add Whitting's dictum that "invariably the cells at the posterior root of the zygoma should be thoroughly eradicated in those cases where pus has extended beyond the antrum." For many a post-operative temperature has dragged slowly along and healing been delayed while pus was being disposed of in this region.

Before attempting to penetrate the cortex the surgeon should be able to interpret the location, in a general way, of the sinus and antrum by the size of the mastoid process, whether it be large or small, long, flat, broad, short or narrow; here is where the extensive flaps and thorough exposure serve their purpose.

In the further technique I would say that mature judgment and the highest surgical and anatomical knowledge in some cases will not prevent an accident to the sinus, but except in unusual conditions, wounding of the facial nerve or the external semi-circular canal is unpardonable.

I believe the safest way to attack the process is with a gouge. Making the initial incision at the sup. ant. corner of the supra meatal triangle, extending it down to the tip, including only the cortex, then the diploea can be removed with the gouge and the underlying structures investigated and removed, until we have a definite knowledge of the location of the sinus. At this stage of the operation, the tip having been cleaned out, one can proceed upward, thus attacking the antrum at

leisure, with much more space to work in and all the landmarks in view. A mistake often made is to attempt immediate entrance of the antrum through a narrow and deep channel which can not be inspected thoroughly.

While the antrum is always found within the boundaries of the supra meatal triangle, their dimensions do not often coincide. So it is unscientific to expect always to enter that cavity through a deep narrow hole, whose location has been placed by numerous inadequate rules. It is wise to exercise caution rather than by restlessness invite evil consequences.

Dr. Knapp once exhibited a bone where the sinus was directly over the antrum.

Whitting says, "In over 800 mastoids he has never found it absent or obliterated, though a few such cases have been reported."

When there is difficulty in locating the antrum, those of us who are not artists are permitted to insinuate between the membranes and bony walls of the meatus, a probe carried to the inner wall of the tympanum, thus determining the limit of depth at which we can proceed, this also establishes the angle of the meatus. This probe may be bent so as to enter the antrum through the aditus and held in position until its point is discovered. This measure is undesirable in acute conditions because it generally makes hearing worse by interfering with the ossicular chain.

Once entrance has been gained into the antrum, we can then proceed to eradicate the zygomatic cells and return to the antrum, removing all softened structures and over-hanging walls, making it as shallow and smooth a cavity as possible.

These remarks apply only to those cases where the mastoid is developed. In the infant there exists only

one accessory cavity, viz., the antrum; there being no mastoid process before two years of age, all the indications for drainage are met when the antrum is thoroughly opened. Just here, permit me to draw your attention to the location of the antrum in these young patients. Its base line will generally be found on a level with the roof of the tympanum. The temporal ridge and Henle's spine are absent in the majority of cases under three years of age. Rarely any instrument except a gouge is needed to penetrate the soft cortex.

In making the initial skin incision in infants, it is well to bear in mind the fact that the facial nerve emerges just posterior to the middle of the meatus, instead of through the under surface of the petrous portion of the bone, so the incision should be carried to the bone only in its upper end and the periosteum should be peeled off the lower portion with great care, lest we cause a facial paralysis.

Let me here emphasize the advantage of the complete over the conservative operation, which is still defended by numerous operators.

First—It is dangerous to work in a narrow opening with a contracted orifice.

Second—It is unscientific.

Third—It is impossible by the eye to arbitrarily separate healthy from diseased bone.

Fourth—Risk of nature's refusing to accommodate us in absorbing dead tissue which is invariably left in situ.

Fifth—Added distress to a patient, consequent to a prolonged healing and the necessity for recurrence to secondary operation, which viewed from our standpoint, or from the patient's, is not desirable.

Without entering into a detailed description of the technique of the operation and the conditions that may

arise, or mentioning the subject of dressings or after treatment, I will attempt a brief review of the indications for the operation. These are influenced by one's attitude towards radicalism or conservatism; some men insist on exploration if pain has lasted only twenty-four hours, while at the other extreme there are those who do not think it necessary to open the mastoid until inflammatory edema and fluctuation expose the blundering of extreme conservatism. So to define an exact symptomatology would appear bold. However, there is a course which can be pursued with much definiteness, when all the indications are considered in the light of our knowledge of recent pathological findings.

I do not deny that there are some cases, especially those with marked constitutional disturbances and indefinite local symptoms that tax the most astute diagnosticians. As an illustration, permit me to cite the following case reported by Dr. A. B. Duels.

"Mrs. B. on the last of January, 1904, developed a case of grippe, with acute catarrhal symptoms in the naso-pharynx and a slight bronchial irritation. On February 2nd, owing to acute pain in both ears, I saw her in consultation. Both drums were bulging. The right mastoid was exquisitely tender on pressure over antrum and tip. Under chloroform anaesthesia, both drums were freely incised. Smears taken from the ears directly after incision showed presence of streptococci, and a diplococcus resembling the pneumococcus, in both. The temperature which was 101 degrees F., dropped to normal in a few hours. The mastoid tenderness had entirely disappeared in 24 hours. I did not see her again for 48 hours, being assured there was no pain in the mastoid. "A slight feeling of chilliness" had been experienced when the temperature rose to 102.4 degrees F. During the interval between

that and the second slight chill, there had been two vacillations in temperature, of about two degrees. Examination of the ear, showed both to be discharging freely; there was no pain, no tenderness on pressure over the mastoid region. A slight bronchial cough was present. In eight hours from this time the temperature had dropped to sub-normal with profuse perspiration, and a few hours later, with a severe chill lasting one half-hour, rose to 105.8 degrees F. No physical signs over the mastoid or sinus, or along the course of the jugular, showed any evidence of thrombosis. The respiration was 32 per minute, the pulse 116 per minute. The attending physician was unable to find any signs in the lungs except an occasional rale in the large bronchi.

Dr. Janeway and Dr. McKernon were called in consultation. We were all agreed that the diagnosis lay between a developing pneumonia and thrombosis of the lateral sinus, or jugular bulb, and that, in the absence of any physical signs of the latter, it was wiser to wait further developments. A blood count made at this time, showed a leucocytosis of 42,000. In six hours the temperature dropped to 103.5 degrees F. and then, with a slight chill, rose again to 105 degrees F. The respiration at this time had gone down to 22 per minute; the pulse to 100 per minute. Frequently cough was present, and by the next morning, when Dr. Janeway saw the case with Dr. Kimball and myself again, the sputum was "so typically pneumonic" (blood stained) that it was considered sufficient confirmation of the diagnosis of pneumonia, although no further physical signs in the lungs were found. Twenty-four hours after the severe chill a drop in temperature to 99 degrees F., with profuse perspiration occurred. The pulse went down to eighty per minute; the respiration to 20 per

minute. The ears were discharging freely, and no mastoid tenderness being present, I did not see the patient again for some days, a diagnosis of pneumonia having been made. Four hours after the last drop in temperature to 99 degrees F., a chill occurred with a rise in temperature to 106 degrees F. In eight hours it dropped again to normal with a profuse sweat and never rose again above 100, the patient making an uneventful recovery without cough or expectoration. At the end of a month I saw the patient. Both drums were healed; the hearing was acute; there was no tinitus."

Here a distinct chill marked each rise of temperature; profuse sweat occurred with each drop. Except for the local physical signs the whole aspect of the case was one of sinus thrombosis. Yet a diagnosis of pneumonia was made on the presence of blood stained sputum, although auscultation signs were as little characteristic of pneumonia as were the local signs of intracranial extension.

1st. In estimating the value of individual symproma and mentioning them in order of importance, I would begin with mastoid tenderness, laying stress on the four points to be investigated, viz., antrum, tip, area, over emergence of mastoid emissary vein, premastoid lamina. pressure being made downward and backward in the meatus. In eliciting this symptom, a skilled finger has every advantage. Under its searching touch a patient often cries out in intense pain, who refused to admit it under the uneducated enquiry. The secret is, that sufficient pressure must be made on the cortex to so indent it, that the nerves in the muco-periosteum of the cells are compressed.

2nd. Then fundus changes, sagging of sup. post. wall, or bulging of the membrane.

3rd. Pain—in children this is often indefinite, but always causes restless sleep.

4th. Microscopic finding, streptococcus pure or pneumococcus, should put us on the *qui vive*.

5th. Sudden cessation of discharge should make us anxious and watchful.

6th. Temperature is unreliable.

7th. Disturbance of function is unsatisfactory.

8th. Enlargement of glands below the mastoid and behind the sterno-mastoid muscle; these glands drain the mucous-membrane and bone of the mastoid region.

Thus we find that single symptoms do not furnish us ground for positiveness, but when the careful observer weighs the history, physical signs and systemic manifestations, there is seldom wanting any evidence.

In conclusion, let me say when a specialist has decided that an antrum contains pus and does not so inform the patient or his friends and advise a mastoid operation, he has not kept faith with his trust.

I hope I will not be considered extreme when I say our duty is to advise opening the antrum in every case of P. O. M.; by this measure we establish ideal drainage which in many cases is not accomplished by incision of the drum, for we would have fewer number of cases of bone involvement if the purpose of our interference were accomplished.

The operation of anthrectomy is not dangerous and many lives are lost by our delay and timidity in advocating what we must confess to be the best and only sure remedy.

Some Practical Helps to an Early Diagnosis.

BY E. T. DICKINSON, M. D., WILSON, N. C.

If one half of the medical world could know just how the other half examines we would all soon become pain-taking, more thoroughly and in every way better diagnosticians.

Now that our surgical proceedings are so exact and therapeutics more scientific and successful the art of diagnosis begs to come into greater prominence.

In order to come naturally to the special points that I want to discuss, I propose to follow closely throughout such an outline as I follow daily in the examination of chronic patients.

The purpose of the life insurance companies is to detect early any evidence of disease; and they succeed very well, covering the entire field except in the one important point of the examination of the blood.

So I find it convenient, systematic and thorough to, follow one of the life insurance examination blanks as a guide to such special investigation as this general examination may indicate. Such a system reviews every organ of the body with the history of its ancestors and often reveals what otherwise would have escaped unnoticed.

Having the name and address of the patient for further reference, I learn that he is or is not married, and that his health is somewhat impaired. I learn whether he has been attended by other physicians, with such names and addresses, being sure at the same time, for sake of comparison, to ask the patient what the other physicians said as to his condition. Asking as to his travels and changes of residence I learn much of the

mental tendency and disposition of the individual as well as to decide whether to make certain tests as to disease peculiar to certain sections. I have found the malarial plasmodium from such indications which proved sufficient to clear up all vague symptoms.

One's habit and history as to the use of intoxicating liquors has a profound bearing upon the examination, treatment and prognosis of men; as does opium, morphia, chloral and other narcotics frequently used by women.

Many patients will say that they have never had any disease of any consequence and yet when the list of special diseases is gone carefully over it is learned that a troublesome cough or some disease of the throat has existed either for years or for a week or two. Either leads to the question of sputum raised from the bronchi and to the best method of its examination for the tubercle bacillus. One hundred per cent. of all microscopic examinations made of sputum from chronic patients are for the tubercle bacillus.

The shortest, most accurate and most constantly satisfactory staining method is one that requires no special tact or skill and one that the beginner can do with entire satisfaction. It is as follows:

1. As the greater portion of sputum consists of secretion from the naso-pharynx and the salivary glands of the mouth I select with forceps the most purulent lump of sputum and smear it thinly and smoothly as possible over a cover glass.

2. After drying the preparation by holding with the fingers over an alcohol flame then passing it, in forceps sputum side down, three times through the flame, it is flooded with carbolic fuchsian (carbolic acid crystals 5 gm., fuchsian—saturated alcoholic solution—10 gm.,

water 100 gm.) and gently steamed over the flame for about 30 seconds, being sure to use enough stain and so little heat that the stain does not dry on the cover glass.

3. Washing in water I then decolorize in a 20 per cent. solution of sulphuric acid about 20 seconds or preferably until a slight pinkish tint remains after washing in water.

4. Washing in 95 per cent. alcohol for a few changes followed by water brings out all the excess of color.

5. As a counter stain the glass is covered with Loeffler's methylene blue for about 30 seconds, washed in water, dried on blotting paper then mounted in Canada balsam. The entire process requires not more than five minutes.

A search is then made with 1-12 oil immersion lens and continued for five minutes or until the bacilli are found. Any red stained bacilli in a specimen so stained is practically pathognomonic of tuberculosis is as other acid resisting bacilli almost never occur in the lung.

A negative diagnosis is made only when six or more such careful examinations have been done from specimens obtained several days apart. When tuberculosis is suspected but no sputum can be obtained the bronchial secretions are stimulated by giving 10 grains of potassium iodide three times a day. If the patient be a young child the sputum is obtained by wrapping the finger with gauze and by inserting it into the pharynx.

Coming to the examination of the chest I am careful to do this in one systematic way and as nearly under the same circumstances each time as to the relative position of patients and myself as is possible, preferring to be seated and in every way comfortable while percussing. The entire percussion of the chest is done with

a view of making the most delicate comparisons. So I percuss one stroke on one side then one on the corresponding point of the opposite side, rather than first down one side then down the other. And I remember always that the first percussion signs of tuberculosis show up by percussing through the clavicles and in the spaces immediately above.

If I fail to get satisfactory evidence of tuberculosis and still have a suspicion I use the method of injecting tuberculine which causes a febrile reaction if tuberculosis exists. If this febrile reaction appears the diagnosis of incipient tuberculosis may be considered absolute and certain.

If there is evidence of disease of the stomach I accept as a fact that these are many neuroses of this organ but only two diseases—ulcer and cancer.

If the patient happens to be as much as 40 years of age and has previous to that age had no stomach trouble, the disease is almost sure to be cancer, and has at this age no more conformitory symptoms, otherwise a quick but sufficiently accurate examination of the stomach contents and of the stool is hastily made.

Hyperacidity with excess of hydrochloric acid and either the history of vomiting of bright red blood or the occurrence of any tarry stools which prove to be blood, point definitely to ulcer of the stomach or of the duodenum.

A reliable test of the presence of blood in the stomach contents or the stools is as follows:

1. Extract with ether added to the specimen.
2. Add acetic acid.
3. Draw off with pipette the ether extract and
4. Add alcoholic solution of guaiac (made by dissolving gum guaiac in alcohol and adding a drop or two of peroxide of hydrogen to the solution which, if mixture

is good, remains colorless). *Blue reactive proves presence of blood.

The examination of the urine gives information well known to every practitioner but it is remembered that the old standard chemical examination shows more than any microscopic examination yet known.

The examination of the blood is on equal footing as to importance with any of the other outlined examinations.

The haemoglobin test is made in every case, showing the degree of anaemia.

A stained blood film is made in nearly all cases and gives invaluable information in many ways.

The total leucocyte count is made in many significant and all puzzling cases to determine the presence of leucocytosis, lymphocytosis, etc.

The red blood count is rarely made, but is made in some significant cases in order to determine the percentage and color index of the corpuscles.

A stained blood film may be instantly made for immediate study by the use of either Wright's or Jenner's blood stains. This shows up all the varieties of corpuscles and parasites in splendid relief and may be permanently mounted of desired.

The total leucocyte count is made by the use of the well known Thoma—Ziess instrument. The red blood count is also made with this instrument.

By comparison of the haemoglobin percentage and the number of red blood corpuscles in a given specimen I am enabled to say whether the anaemia is secondary to some hidden disease. If the haemoglobin is found reduced in greater portion than the red blood corpuscles the anaemia is secondary or chlorosis and the underlying disease is looked for. If the number of red corpuscles is found reduced in greater proportion than the

haemoglobin, giving a high color index, and the leucocyte count subnormal together with marked deformities of the corpuscles and abnormal staining of the red cells the disease is pernicious anaemia. ¶

Leucocytosis, increasing polynuclear neutrophiles to more than 7000 per cubic millimeter, is often of value in the differential diagnosis between typhoid fever and appendicitis or other pyogenic infections. When taken often the leucocyte count gives information as to whether a local suppurative process is advancing or retreating or whether pus-pocketing has occurred.

Lymphocytosis, increase in lymphocytes to more than 3500 per cubic millimeter, occurs only in lymphatic leukemia and whooping cough. It is a greatest value in differentiating lymphatic leukemia from other diseases accompanied with glandular enlargements.

When the leucocyte count is as high as 250,000 per cubic millimeter myelogenous leukemia is certain.

By study of the same stained film all the varieties of malarial parasites can be seen and differentiated.

The more rare forms of parasites are also looked for and easily seen through this method.

The usual time required to make such a physical, chemical and microscopic examination as outlined above is about 30 minutes and often shorter, depending on the individual tests that are found necessary.

Goitre and its Treatment.

BY STUART McGUIRE, M. D.,

Surgeon in Charge St. Luke's Hospital, Richmond, Va.

The number of cases of goitre that have recently come under my observation causing marked disfigurement, incapacity to work, or seriously threatening life, has lead me to study the subject and to prepare this paper. I have nothing new or original to present, but the subject is worthy of attention and will for a time at least give a fresh field for thought to the physician who attributes almost every ill to which human flesh is heir to the hook-worm, and to the surgeon who looks on every abdomen as full of potential evil or a possible Pandora's box.

The importance of goitre is fully appreciated abroad where in certain sections its victims fill the hospitals and cannot escape the observation of the casual tourist.

In Virginia and the Carolinas the disease is supposed to be rare, but almost every doctor will tell you that he has several cases in his practice. When these patients apply for treatment they are usually told to paint the growth with iodine, and failing to secure improvement and being given little encouragement to try other measures for relief, suffer in silence and go handicapped through life to frequently a premature death.

Only a certain proportion of cases of goitre require surgical removal of the growth, but the need in this class is urgent. The patients that come to me are not usually sent by physicians, but by friends. When the profession is educated to the advances that have been made in this line of work there will in my opinion be

found an abundant material in our midst to add yet another specialist to the field of surgery:

Goitre is a swelling of the thyroid gland, not due to inflammation or to a malignant tumor. The enlargement may involve only a small portion of the gland, or one lobe or both lobes, or both lobes and isthmus. The disease is roughly divided into ordinary goitre and exophthalmic goitre. The ordinary form occurs in one of three varieties, the parenchymatous, the adenomatous, and the cystic. *Parenchymatous goitre* is due to a hypertrophy of the entire gland. It does not appear first in one lobe and then in the other, but the entire gland usually enlarges symmetrically. *Adenomatous goitre* is due to the growth of one or more adenomatous tumors on the substance of the thyroid. There may be a single adenoma, but usually there are more than one. The enlargement begins in one lobe and the growth is not symmetrical. *Cystic goitre* is due to the presence of cysts in the gland. They may form from a coalescence of overdistended thyroid vesicles, or from a mucoid or colloid degeneration of adenomata, or from an extravasation of serum or blood into the tissue. *Exophthalmic goitre* is an unusual type of the disease, where the thyroid is only slightly and symmetrically enlarged, but the condition is attended by grave constitutional symptoms such as rapid pulse, palpitation, tremors, nervousness, breathlessness on slight exertion, and protrusion of the eyeballs. The cause of goitre is not definitely known. Sometimes a number of people in a community are attacked (epidemic goitre); sometimes it is always present in a certain section (epidemic goitre); sometimes only an isolated case occurs (sporadic goitre). Goitre is common in the valleys at the foot of certain ranges of mountains in Switzerland, Italy and France. It is so common in one county of

England as to be called the Derbyshire neck. In our country it is most frequently seen in the mountainous sections. A gentleman from southwest Virginia tells me he remembers when a boy seeing on Court Day a number of men with goitres so large that they had to be supported in a bag.

Goitre may be due to hereditary influences, unsanitary environments or bad habits of living. As a single etiological factor the effect of drinking water which results from melting snow has perhaps the strongest support. The most prominent symptom of goitre is an enlargement of the thyroid gland, the swelling following the movements of the larynx and trachea on deglutition. This is not pathognomonic, however, as it is also seen in hyoid cysts, and is not present when a goitre is anchored by adhesions which sometimes develop after infection or malignant degeneration.

The size of a goitre varies greatly, as does also the shape. If both lobes are involved the growth is symmetrical. If only one lobe is affected the growth is upon one side, although later it may so displace the windpipe as to appear central. A goitre sometimes changes its position and then is called a wandering goitre. It may become substernal, interthoracic, retrotracheal, or retro-esophagal.

The growth of the goitre may cause serious pressure symptoms. Obstruction to circulation gives rise to enlargement of the veins of the neck and face, irritation of the recurrent laryngeal nerve to a reflex cough or metallic voice, mechanical interference with the larynx, trachea and esophagus to difficulty in respiration and deglutition. The course of a goitre cannot be predicted. It may shrink and disappear, it may remain nearly stationary, enlarging temporarily at the menstrual period and during pregnancy. It may grow slowly or rapidly.

It may undergo alteration in shape and consistency due to degeneration. It may become malignant.

If a goitre is fairly symmetrical it is usually parenchymatous; if it is not symmetrical it is either adenomatous or cystic. If it suddenly enlarges it is due to internal hemorrhage. If it does not produce pain on swallowing it is usually benign. If it causes pain it is most likely malignant.

The medical treatment of simple goitre consists in the administration of thyroid extract, iodide of potash or arsenic, and the local application of tincture of iodine or red oxide of mercury ointment. With the exception of thyroid extract in a limited number of cases of parenchymatous goitre these remedies are absolutely without effect. Many cases of goitre, especially those which begin about puberty, tend to spontaneous cure and the use of the drug treatment on these patients has given it what little confidence it at present possesses.

Electricity, the mysterious agent which has promised so much and accomplished so little of real therapeutical value, has also been tried. Electrolysis and cataphoresis have about been abandoned and the X-ray is now being used experimentally. Practically the treatment of goitre consists in the use of placebos in the early stages with the hope of an arrest of growth and spontaneous cure. Later, should developments prove the necessity of intervention, an operation should be done before local or general conditions make it hazardous. The indications for an operation may be classified as follows:

1. Rapid growth.
2. Marked deformity.
3. Interference with respiration.
4. Infection and inflammation.
5. Suspicion of malignant disease.

The last is the most important. Carcinoma of the thyroid is more common in the young than is generally supposed. It is usually indicated by the development of small irregular tumors in the gland. An early operation gives the only chance for life.

Of the numerous surgical procedures formerly practiced but two have stood the test of experience, namely, extirpation and enucleation.

Extirpation consists in the removal of a portion of the gland together with its capsule. Usually only one lobe is taken out, although sometimes both are extirpated. Some of the gland substance must be left or else myxedema will develop. The operation is effected through an incision across the neck at the collar line. The capsule of the gland is exposed and separated from external parts. Vessels are tied before being cut. The superior and inferior thyroid vessels are ligated, care being taken to prevent injury to the recurrent laryngeal nerve. The lobe is then lifted from its bed and dislocated from the wound. The isthmus is crushed and tied.

Enucleation consists in the removal of tumors or cysts from the substance of the thyroid. The gland is exposed and an incision is made through its capsule and tissue until the tumor or cyst is reached. As a rule they can readily be recognized by a difference in color and consistency. They are enucleated by blunt dissection; hemorrhage is arrested by ligating bleeding vessels, and the resulting cavity loosely packed with gauze.

The choice between the two methods described will depend on the character of the case. Indications being equal, excision is preferable to enucleation. It gives the surgeon better control over hemorrhage and the patient greater assurance against recurrence.

Kocher has operated on over three thousand cases of

goitre with a death rate of less than one-third of one per cent. With this wonderful experience and result he is naturally regarded as the greatest authority on the disease. In the last edition of his work on operative surgery he says, "Medicinal treatment, still so often employed by the physician and persevered with to the patient's detriment, can have no effect and is therefore unjustifiable. As soon as a goitre produces dangerous symptoms, viz.: obstruction to respiration and a tendency to asphyxia, or when it undergoes inflammatory changes or assumes the slightest suspicion of malignancy it should be removed by operation." Kocher earnestly advises the local use of cocaine as a substitute for general anesthesia in these operations. I am told, however, by a physician who has just returned from his clinic, that while he practices what he preaches on charity patients, he almost invariably uses chloroform or ether in his private work. I am informed that in his clinic patients are placed in a half-sitting position in a chair, with arms lashed to the sides, and chest and forehead fixed with broad straps. A scratch is made across the throat with a knife to show the assistant the line to be injected. The skin is then incised and the operation completed with manifest suffering. Personally, I have done all my operations for goitre under chloroform. I began the practice because I feared owing to my inexperience I would encounter difficulties and perhaps do awkward work. I have continued to use a general anesthetic, as I have seen no bad effect from it. I realize that there are certain cases where cocaine would be safer and when I encounter them I will use it, but as will be readily appreciated, it is less taxing on the nerve of both surgeon and patient to have the victim unconscious when the throat is cut. I have never had a fatality in over 10,000 administrations of

chloroform and hence have little fear of it. The only logical argument for the routine use of cocaine in operations on goitre is that owing to the patient's ability to talk the recurrent laryngeal nerve can be identified by the change in the voice when it is touched with an instrument.

The danger of excessive or uncontrollable hemorrhage which is the uppermost thought in the mind of the surgeon in his first few operations for goitre is unwarranted. By ligating vessels at two points before cutting, and carefully catching bleeding points as they appear, the amount of blood lost is trifling. The real danger is the development of acute thyroidism after the operation from the absorption by fresh surfaces of juices squeezed from the thyroid gland. In one of my cases this result ensued and the patient had rapid pulse, high fever and some delirium for two or three days. Fortunately the intoxication did not prove fatal. This complication must be guarded against by handling the gland gently and avoiding unnecessary manipulations in its removal. Also by the provision for free drainage. Some surgeons cover the divided isthmus with the capsule of the gland; others paint all raw surfaces with Harrington's or adrenalin solutions. Others rely largely on saline transfusion given just before the operation is completed, claiming that it so fills the vessels that absorption is prevented.

In conclusion, permit me to say a few words with reference to the most advanced theories in regard to exophthalmic goitre. Until recently these cases were treated medically by rest in bed, ice bags over the heart, and the internal use of ergot, bromides, digitalis and belladonna, and surgically by the resection of the cervical sympathetics or the excision of the major part of the thyroid gland.

It was noted that myxedema and exophthalmus were the antithesis one of the other. Myxedema was due to a deficiency of thyroid secretion and characterized by slow speech, mental dullness and sub-normal temperature; while exophthalmus was due to an excess of thyroid secretion and characterized by rapid pulse, mental exhilaration and excitement. Thyroid extract was found to cure the first and be harmful in the second. If a specific had been found for the one why could not one be discovered for the other? The first experiments consisted in injecting the blood of a patient suffering from myxedema into a patient the victim of exophthalmus. Unmistakable good resulted.

As the symptoms of exophthalmic goitre are believed to be due to over-activity of the thyroid gland and an intoxication of the system with thyroid secretion, the treatment should be an effort either to check the secretion or to neutralize the poison. The physiological function of thyroid secretion is to neutralize some toxin produced in the course of metabolism. Theoretically the blood of an animal whose thyroid has been removed should contain the toxin which would combine with and neutralize thyroglobulin. There is a serum now on the market prepared from the blood of sheep whose thyroids have been removed. It is too early yet to tell its practical value. There is every reason to believe, however, that some specific of animal origin will shortly be discovered that will act as beneficially on exophthalmic goitre as thyroid extract does on myxedema.

Report of Three Cases of Post-Typhoidal Infection of Ribs

BY J. SHELTON HORSLEY, M. D., RICHMOND, VA.,

Professor of Principles of Surgery in the Medical College of Virginia; Surgeon to Memorial Hospital.

In a paper published in the *Annals of Surgery* (February, 1903), I reported a case of post-typhoidal infection of ribs. The case was to me a very interesting one and on looking up the literature I found a number of points which seem to differentiate typhoidal infection of ribs from a similar infection of other bones. It is well known that the bacillus of Elberth can live in a human body without giving symptoms for months or even years after the patient has recovered from an attack of typhoid fever. An examination of the urine of convalescents from this disease has shown this germ present for months after the patient had returned to work. Von Dungern reports an instance in which a patient developed a tumor in the region of the liver fourteen years after an attack of typhoid fever. On operation the pus evacuated showed a pure culture of typhoid bacilli.

An analysis of a table containing forty-eight cases gathered from the literature to January 1st, 1903, published in the article above referred to, shows that there have been very infrequent reports of this disease. The forty-eight cases include seventy-eight infected ribs. The sex is stated in forty-seven, forty being men and seven women. This is due partly to the fact that a larger number of men have typhoid than women, but the proportion seems to be too great to be accounted for solely in this manner. In women the greater blood

supply to the chest wall on account of the mammary glands may explain this comparative immunity, as the resistance to infection would be increased on account of this unusual amount of nutrition thus conveyed. The youngest case on record is a boy, nineteen years of age. Classed according to decades there is one case under twenty; there are eight between twenty and thirty; twelve between thirty and forty; ten between forty and fifty; three between fifty and sixty, and three between sixty and seventy. The lower ribs seem to be affected in most instances. As regards the time of appearance, some of these cases arise during convalescence from an attack of typhoid, but most of them at periods ranging from two weeks to three years after convalescence. This serves to emphasize the care with which a physician should inspect any enlargement or pain in the ribs in a patient who has been subjected to an attack of typhoid fever, even though the fever may have occurred years before the symptoms of rib trouble appeared.

Among the peculiarities that seem to distinguish post-typhoidal infection of ribs from similar disease of other bones, may be mentioned:

First. The marrow of the ribs seems a favorite seat of the bacillus of typhoid, probably because the resistance to this germ in the ribs is lower than in other bones. However, there may be some peculiar construction of the marrow of these bones, which favors the development of this germ. Quineke, in nine post-mortems, found this bacillus eight times in the marrow of the rib and only once in bones of the extremities.

Second. The position of the ribs being superficial, their continuous movement in respiration, and the constant impact of the heart would make a point of least resistance more liable to occur here than in other bones.

Third. The most striking point of difference is the

age at which post-typhoidal infection of the ribs occurs. Though other osseous lesions due to typhoid occur in the very young, there is no case of disease of the ribs from this cause in a patient under nineteen. This fact has been alluded to above and an analysis of the various cases reported shows that the vast majority occur after thirty years of age. Helferich thinks this peculiarity is due to the changes in the costal cartilage from age, as vascularization, breaking of fibres in the intercellular substance, etc.

Fourth. The difficulty of thoroughness in operative treatment of the ribs is more pronounced than is the case with other bones. Unlike cases of osteomyelitis of the ribs from pneumonia or other similar troubles, the pleura is here but slightly thickened and is often normal, consequently it is easily wounded. The proximity of the pericardium and, in the lower ribs, of the diaphragm, tends to increase the dangers. Those interested in this feature will find some cases in the Johns Hopkins Hospital Report, of 1895, which were operated several times before cure was effected. Keen mentions a case in which a patient was operated upon five times before being cured, the last two operations being performed by Doctor Keen himself and four of the five operations being very extensive.

The symptoms of post-typhoidal disease of the ribs differ from other inflammatory diseases of these bones, in that the constitution of the patient is not affected for a long time, which is in marked contrast to similar lesions produced by tuberculosis, pneumonia or injury. The temperature and pulse are practically normal, though suppuration may be free. Dead bone can rarely be distinguished with a probe on account of the infrequency of necrotic sequestra here. Bacteriological examination usually shows the typhoid bacillus.

As regards treatment, not all cases of this disease require operation. Often recovery takes place after general medical treatment. If this does not occur after a few months, or particularly if the disease seems to



progress, operation should be done. In order to be successful the surgical procedure should be most thorough. Mere curetting or excision of a small portion of bone or cartilage is rarely curative. In order to be impressed with this fact it is only necessary to read reports of numerous cases requiring several operations even in the hands of most competent surgeons.

Of the three following cases, the first has already been published in some detail; the other two have not been reported.

Case 1. Mr. C. B. M., age 42, mining engineer, American. Family history negative. Previous health excellent, except an attack of typhoid fever in the fall of 1900. A few weeks after convalescence an abscess ap-

peared over his rib on the left side. This was opened but never healed. About six months later he came under my treatment and was operated upon, all of the sixth costal cartilage and most of the seventh and a portion of the sternum being removed. The wound did not heal satisfactorily and two months later a more extensive operation was done, which resulted in slow but complete healing. There has been no tendency to recurrence, and the patient when heard from a year after the last operation, was perfectly well.

Case 2. Mrs. T., aged 43 years, was kindly referred me by Dr. E. H. Terrell of Richmond. Her previous health had been good, but during the summer of 1904 she had a severe attack of typhoid fever. During convalescence and before the patient was discharged from the hospital, she complained of some pain in her ribs on the right side. Later a lump developed and in November, 1904, the patient was referred to me. I found a marked swelling about the region of the fifth costal cartilage on the right side. On November 29th, I operated upon her and found some pus and disease of the fifth costal cartilage, the adjoining portion of the sternum, and the end of the fifth rib. A culture was taken from this pus by Dr. E. G. Williams, who reported a pure culture of a bacillus identical with the typhoid bacillus. The diseased cartilage and bone were removed, though not as thoroughly as it should have been, because an assistant, while attempting to catch a blood vessel, perforated the pleura. The hole was stopped, but it was impossible to finish the operation satisfactorily. However, the wound healed promptly and the patient was discharged from the hospital December 20th. About two months later a swelling appeared in the scar and an operation was again performed. A curved incision was made, lifting the mam-

mary gland with that portion of the pectoral muscle immediately beneath it. This permitted free access to the diseased bone. The cartilage, which had partly reformed, was removed, together with several inches of the adjoining rib and a considerably larger portion of the sternum than had been excised during previous operation. Recovery was uneventful and complete, and patient remains well.

Case 3. Mr. H., aged about 45 years. Previous health good. Two months after convalescence pain appeared in the lower part of his right chest, together with swelling and other evidences of suppuration around the ribs. This was incised by the family physician and some months later, the wound not having healed, the patient came under the care of Dr. J. B. Catlett of Staunton, who operated, removing most of the cartilage to the seventh rib and curetting the sternum. The wound did well for a while, but six weeks later evidences of further trouble arose. There was continued suppuration and no further attempt at healing. In the summer of 1903, Dr. Catlett kindly referred the case to me. I operated in Staunton, removing several inches of the seventh rib together with all of its costal cartilage, a good portion of the cartilages immediately above and below and the adjoining portions of the sternum. The operation was a very extensive one but healing took place satisfactorily and a few months later Dr. Catlett reported the patient as being entirely well. When last heard from a few months ago, he was in good health with no sign of recurrence.

House-to-House Surgery and Tea-kettle Sterilization.

BY JOSEPH PRICE, M. D., PHILADELPHIA PA.

Mr. President and Gentlemen of the Tri-State Medical Society:—

Teachers rarely revise their lectures; theoretically practitioners are failures. As long as they rely wholly upon theoretical knowledge, laboratory work, they find it difficult to apply such knowledge at the bed-side or at the operating table. I have known a large number of bright young men to visit the prominent laboratory centers of Europe and take all sorts of scientific and theoretic instruction; indulge in good beer and cheese; study art galleries and enjoy the fine music and talk loftily about how much finer those articles and institutions are abroad, but few of them seem to get that real clinical knowledge that enables the good apprentice to go on with successful practical work and fine results. A prolonged clinical apprenticeship does not always make a good or successful operator, but most successful and competent operators serve an apprenticeship of some sort—he either schools himself or is schooled by some one. Successful operators never came from the scientific laboratories, where they make a study of round and spindle cells and blood counts.

My object in alluding to the source of successful operators is to strengthen my position in the discussion of the important subject, "House-to-House Surgery and Tea-Kettle Sterilization." Our present bold and aggressive surgery had its origin at the cross-roads, near the cotton gin or saw mill—not in the laboratory centers. Private hospitals and nurse schools came from precisely the same source. The great pioneers in plas-

tic and abdominal surgery gave us the private hospital, the first great post-graduate school.

Private hospitals have done much to re-educate our profession. In my specialty most prominent operators either re-educated themselves in house-to-house work with tea-kettle sterilization and the gospel of cleanliness practiced and taught by Mr. Tait first, from his house-to-house work and tea-kettle sterilization; and second, in his private hospital where he taught that everything must be simplicity itself with the gospel of cleanliness. The great Sims gave us our plastic surgery in a private hospital in his back yard. There he devised procedures and perfected materials for the cure of loathsome afflictions or accidents incident to parturition and from the Southern states he went to New York and created the Women's Hospital, the great plastic school of the world.

I might name a few of the early house-to-house pioneers—William Baynum of Virginia, two deliberate premediated sections for ectopic pregnancy house-to-house and tea-kettle sterilization, recovery. Ephraim McDowell, ten years later, private hospital (home) house-to-house operations, four consecutive ovariectomies tea-kettle sterilization without a death. John Light Atlee, Lancaster, Pa., ovariectomy at home 1843 tea-kettle sterilization, recovery. Nathan R. Smith, Connecticut, first ovariectomy tea-kettle sterilization, recovery.

Now I have given you a list of the first eight deliberate ovariectomies (abdominal sections), done in America from house-to-house tea-kettle sterilization without a death; but few modern operators get their series so long without modifying or revising the operating room or installing a new sterilizing plant. Now let me compare the results of some of the fashionable operating

rooms. At the Hopkins they had an epidemic of sepsis and lost five consecutive cases. They attributed it to catgut. In Boston, in a fashionable hospital with imported costly apparatus for a new operating room, some eight cases died of virulent sepsis. The operator thought the atmosphere the source of the infection and though it best to put the operating room out in the lawn, out of the hospital atmosphere. I have known a good number of good operators to lose five and seven consecutive patients while operating in fashionable and costly hospitals after installing what they call their new sterilizing plant. Their colleagues have in a number of instances advised them to take a vacation.

Now I am not going to talk about what has been accomplished in house-to-house work, in alleys and courts where the environs were appalling and filthy to a dangerous degree, but the results in all sorts of complicated abdominal and plastic surgery by tea-kettle sterilization which results were sufficiently pleasing and encouraging so much as to organize the ward or district nurse associations in the large cities where that sort of work goes on. It is trying and laborious both to operator and nurse. It has been my pleasure to know a great number of successful Southern surgeons, justly celebrated at home and abroad. The great work of McGuire in house-to-house surgery of a varied nature, tea-kettle sterilization will never be excelled. Robinson of Danville, and Gaston of Atlanta, repaired viscera, cleansed the abdomen and saved their patients after extensive lacerations of the abdominal viscera from murderous assaults with a stevedore hook, tea-kettle sterilization and good surgery. About all the prominent and successful operators throughout this country began their work in private homes and continued it for a number of years or until it became heavy

and exacting or patients coming from great distances compelling them to make special arrangements for them in the shape of private hospitals for their accommodation, where he did, or continues to do, splendid work with splendid results; but none of these operators claim finer results than in private or their house-to-house work with tea-kettle sterilization.

There has been too much shipment or transportation of septic patients and infectious maladies, resulting in late operations and high mortality in educational or operative centres. While making an earnest effort to educate the clinician active practitioner up to the importance of early diagnosis and early interference, we have favored the delay by urging him to ship his patient, and after shipping his patient he finds that he is to be put in cold storage until the murderous trouble has limited or defined its borders. We favor a mortality by encouraging a delay and spreading infection by transportation.

I have great pleasure in the honorable reputation of so many of my fellow statesmen and others of having built up for themselves in house-to-house work and tea-kettle sterilization. I have numerous friends following a strenuous surgical life. I am going to quote in conclusion, part of a letter from a distinguished friend we all admire, Dr. L. S. McMurtry, house-to-house tea-kettle sterilization: "Yesterday I had a call to a case of intestinal obstruction; 48 hours obstruction in spite of castor oil, salts, enemata, calomel and two drops of croton oil. A knuckle of ileum was constructed by a band and another knuckle enclosed in the loop, all of dusky hue, abdomen full of serous fluid. Time of operation, 22 minutes. Patient had 6 movements in the next 12 hours and was practically well—no vomiting after taking off the pressure.

Do Healthy Individuals Incur Any Greater Degree
of Liability of Contracting Tuberculosis in Visiting
Resorts Frequented by Patients Affected With
Pulmonary Tuberculosis Than Elsewhere.

BY J. HOWELL WAY, M. D., WAYNESVILLE, N. C.

Member North Carolina State Board of Health, ex-Member and Secretary North
Carolina State Board of Medical Examiners, Etc., Etc. .

More than two decades have passed since Robert Koch discovered to the world the causal relation of the tubercle bacillus to pulmonary and other forms of tuberculosis. During these years the investigations of an ever alert medical profession have added much to our knowledge of the nature, prevention, and treatment of the disease; yet the practical fact remains that mistakes have been made, false postulates promulgated and advances made in certain directions from which intelligent scientific study demands rereat—a state of conditions not at all surprising, nor discouraging to those of us who are more interested in establishing truth, than in defending untenable positions because assumed primarily by those having authority, and today regarded as demonstrated facts by the majority of medical men, and as fondly cherished by the masses of educated laymen.

Every practitioner of medicine much in contact with a cosmopolitan clientele is profoundly impressed with the extent of the tuberculophobia with which the masses of the people have been indoctrinated, and the popularity of a health resort frequented by tubercular patients like the Adirondacks, or the mountains of Colorado, or of Western North Carolina, or the resorts of lower altitudes like Aiken or Thomasville, or Southern

Pines, is subjected to attacks which when one hears them he will unconsciously turn and ask, Is the popular dread of becoming infected with pulmonary tuberculosis from casual contact with a case of the disease only in part a groundless apprehension, or does such extreme danger really exist?

Residing as I have in one of the resort towns of the Carolina mountains within a few miles of the well-famed city of Asheville, in a climate where literally thousands of tubercular patients have breathed anew the breath of a restored and lengthened life, and hearing daily from transient visitors such expression as, "I did not dare stop over in Asheville overnight," "I would not stay there under any consideration, for it would be taking chances with my life," "My home physician who is one of the best doctors in the country told me to be very careful when I went to Asheville," or other similar extreme statements—naturally with a man who wishes to be professionally honest with himself and his patients, the question will come, Is it not time a note of wholesome warning was sounded to the profession relative to farther teaching of extreme doctrines not warranted by the facts?

While I appreciate fully the fact that modern textbooks of medicine, pronouncements of boards of health, essay upon essay in all the journals from the pens of virile writers, tome upon tome of literature written about tuberculosis for the express purpose of enlightening the nontechnical public, all constantly and persistently with few exceptions continue to inculcate the doctrine of the extreme danger of tubercular infection from casual contact with the patient with tuberculosis or his environment; yet I am fully convinced the pendulum has swung too far. Both doctors and laity have learned a part at least of the lesson in tuber-

cular prophylaxis, "not wisely but too well." And when one sees and recognizes the pertinent facts that the extreme views upon this subject are not only seriously disturbing to the mental comfort of many people, but positively conflicting with the real facts, it is evidently time for those of us who are convinced differently, to carefully enquire as to the real situation and if an error has been made (by both physicians and laymen) let us hark back to the truth.

In the short and imperfect consideration which I propose giving this subject today, I shall only mention for your thoughtful consideration certain suggestions without attempting to present a complete or systematic study of the various phases of this most vital problem, making as a preliminary note the statement that in my opinion the prevalent fear lest our health resorts for tuberculosis become hot beds of virulent infection for the healthy is entirely an erroneous one and unjustifiable on any scientific consideration of the subject. And farther emphasizing the assertion that when the present wave of tuberculophobia shall have passed and the doctors, with the people whom they have mistaught, come to their senses again these facts will be generally recognized.

The tubercle bacilli is a non-motile vegetable parasite devoid of capacity to reproduce itself outside the living body, and while a consumptive freely and indiscriminately expectorating, without regard to the lodgment of his sputum, will disseminate millions of bacilli every day in his environment, yet it may well be questioned if even indiscriminate expectorating (leaving aside certain other considerations) is as pregnant with dangerous infective possibilities as we have been taught, and taught, to believe in former years. While at the present time I would not advise, or personally favor,

any degree of relaxation of the very excellent restrictions which are thrown around the expectorating of tubercular patients, or the eminently proper disinfection of their apartments, as is currently practiced in our more enlightened health resorts, yet in the light of recent studies it can but be evident that the infective possibilities even here have been greatly magnified. It has been repeatedly shown of recent years that even when deposited in a fairly large mass of mucous the T. B. exposed to direct sunshine are destroyed in two hours exposure, and in strong daylight only a few hours longer are required for their destruction. This being the case, the T. B. which expectorated on the open ground, are wafted away in the atmosphere while still vital are very few indeed. And if we should take the trouble to calculate a moment, and recalling the constant changing of the atmosphere, especially in our mountain resorts with their ever present breezes, and figure the cubic quantities of air in a street or any given open out-of-door space, and this constantly changing, we will naturally arrive at the conclusion that the liabilities of infection here are very small indeed. The elaborate series of studies of Drs. Flick, Ravenel, and Landis, of the Phipps Institute, which were presented in detail during the recent ten days session of the Pennsylvania Society for the Prevention of Tuberculosis held only last month, are very instructive. Briefly, their investigations covered very complete studies of street dust from crowded city streets where many cases of pulmonary tuberculosis were known to pass daily, even hourly, without any restrictions whatever as to expectoration, and such studies demonstrated an absence of active vital T. B. in such street sweepings. The T. B. is essentially a house plant, and tuberculosis is essentially a house disease, its exciting germ does not live,

thrive, prosper, or enjoy any of the functions of life except in darkness, or at least the absence of good light, and in the presence of filth or at least a lack of ample ventilation and thorough cleanliness.

The collected reports made in 1905 by Hueppe of all sanatoria for pulmonary tuberculosis in the German Empire and extending over a lengthy period of years, showed that out of 2,020 attendants, including physicians and personal attendants, as well, employed in these institutions, only 11 cases of tuberculosis developed. If the dangers of infection from close contact with the tubercular cases were a great one, assuredly we should have a much larger percentage of the disease in those so closely associated, with exposure to contact, and to particles of sputum in coughing instead of an actually less rate of infection than in the community at large! Gardner, of Colorado Springs, in a recent paper emphasizes the fact that as a result of careful systematic search for cases of pulmonary tuberculosis developed at Colorado Springs among the local population ranging from 15,000 to 30,000 during the 20-year period covered by the investigation, only 20 cases, or one a year, could be found as having developed there among the natives or visitors—a truly remarkable state of affairs when we recall the fact that there must of necessity be a very considerable element of the permanent population of the city made up of persons who were at one time of their lives the subjects of the disease. Baldwin has shown most conclusively that the danger from infection at Saranac Lake is very small, a study of the records of the place for 15 years ending in 1905 showing only 20 cases as having occurred among the residents in that time: and it is more than likely that most towns of similar size in the country would have shown as many or more non-imported cases in this period of

time—towns which are not frequented annually by thousands of tubercular patients. Dr. Holland, of San Moritz, stated in 1905 that he “is positive there has been no increase in the development of tuberculosis among the native population due to the infection from the large crowd of patients who throng that popular European resort.” The official registration of deaths in the Davos Platz district from 1876 to 1900 exhibited the interesting fact that during the 25 years the total number of cases of pulmonary tuberculosis among the native population of Davos Platz was 38 persons—and this, too, in a total population of nearly 10,000! Dr. F. M. Sandwith, of Cairo, Egypt, reports as follows: “There is no special evidence that tuberculous invalids sent to Egypt have become sources of infection to the native residents!”

Coming nearer home to the mountain resort region of Western North Carolina, the reports made to me personally from leading specialists in tubercular affections in Asheville tend to establish the same state of facts. The official records of Asheville (quoted to me by Dr. Burroughs) “show the deaths from pulmonary tuberculosis among the native population for many years past to be less than one fourth of one per cent!” And he confidently adds, “I am convinced the safest place for security against tubercular infection is a resort of this kind where the proper sanitary restrictions against contracting tuberculosis are enforced.” Dr. von Ruck in a sanatorium experience of 20 years says he “has never seen a single case of tubercular infection occurring from personal contact with patients on the part of employes or physicians,” and further adds his belief “that strangers going into a city or remaining there any length of time, although there may be tubercular patients there, have in fact nothing to fear!”

Additional confirmatory testimony I have from Drs. Minor, Ambler and Cotton, and Dr. Weaver (himself a native to "the manor born") advises me that "Asheville has a lower death-rate from tuberculosis now than 30 years ago and the actual percentage of cases of tuberculosis among the native residents is less than it is in the rural districts of the county!"

Numerous other letters are by me as I write from other gentlemen of large practical experience in resorts frequented by patients with pulmonary tuberculosis, and in the main the general tenor of opinions are to the effect that under ordinary conditions there is absolutely no danger to healthy natives or visitors from the presence of cases afflicted with tuberculosis, that the possible dangers of such contact had been greatly overestimated by both profession and laity, and without exception no one writing had ever known of a case becoming infected from such contact!

Now, possible objection may be made to this form of investigation by securing personal opinions on the ground that individual prejudices in favor of local interests may have exerted an influence in shaping some of the expressions, or as Cornet some years since bluntly expressed it "Natives in admitting cases of infection imperil their most precious interests." It will be remembered, however, in this connection that men like those quoted have opportunities for the making of careful observations relative to such questions which would naturally give great weight to the value of their studies, I of course admit, in view of the prevalent belief in the virulency of the infection of pulmonary tuberculosis, that it is a little remarkable that from leading health resorts in both continents, frequently by thousands of patients suffering with consumption the reports should so uniformly show that infection to people con-

stantly seemingly especially exposed to such infection should be so extremely limited. Certainly it is a fact that should be heralded to the professional world that the average ratio of cases of pulmonary tuberculosis as to population at large is decidedly less in the popular health resorts for pulmonary tuberculosis where thousands have been thronging annually for a generation now, than in the average city or town where there are considered to be relatively few cases of the disease and where people rarely even think of there being any danger of a tubercular infection. From a consideration of these opinions I believe we are amply warranted in asserting a belief that probably the safest place from a possible tubercular infection is to be found at a first-class health resort frequented by tubercular patients, but where the residents are fully alive to the modern principles of preventing disease by rational living, proper ventilation and correct hygienic methods of living.

Now, admitting the bona fide existence of a specific infectivity of the tubercle bacillus to produce tuberculosis (and in this I take it we absolutely all can but agree!), it is pertinent to enquire why persons residing permanently in, or visiting health resorts frequented by the tubercular, are so little liable to infection? In all probability there are several causative factors at work. Primarily it should be borne in mind that infection with T. B. occurs most often at a period really far remote from the development of symptoms which command the attention of either patient or physician. Tuberculosis is tediously slow in its development, and the tendency of recent thought is to view it as taking place in the majority of instances in early childhood, probably through the lymphatic tissues of the pharynx, and barring those individuals who furnish so great a proportion of the pulmonary tuberculosis cases of our

great cities, living under extremely unsanitary environment (the so-called "submerged tenth!"), infection in an adult is unquestionably the exception. Ofttimes the cases which may at first seem to have been instances of recent infection, will on a more critical study prove to have been patients where the T. B. since early childhood have been slowly working their way from tonsil to lymphatics, with little disturbance of the health equilibrium, until the influence of some vitality depressing factor determines the sudden manifestation of tubercular activity exhibited throughout the whole physical organism. Such cases are too often erroneously classed as re-infections from without the body, when in truth it has been merely a latent infection called into activity.

A place which is enabled to establish a reputation as a health resort for the tubercular is primarily and essentially a place so situated as to possess to a maximum degree those qualities which are regarded as conducive to health and longevity, and in only a minimum degree the influences which undermine or lower vitality. In other words health resorts for tuberculosis are as a rule situated where there is marked dryness of the soil, with high, or moderately high, altitudes, and in a relatively dry climate, or where there is to be found the maximum comparative amount of sunshine associated with the minimum average atmospheric humidity. These conditions afford an environment intrinsically inimical to the life of the T. B.; hence the ordinary individual, be he resident or visitor, naturally responds to the invigorating and tonic influence of the climate and an improved metabolism renders him less liable to infection in the health resort than he would be in climates of the average sunshine and humidity.

Then, too, there is naturally and unavoidably at the

health resort a far greater degree of consideration paid by all classes to health laws; there are better hygienic regulations in force, indoor occupations, both as regards work and play, are relatively far less in evidence than elsewhere, there is an absence of the over-crowding, over-heating with deficient ventilation, which latter defect I have noted in every large city I have ever visited (and it has seemed to me to be by no means confined to the domiciles of the "submerged tenth!"). The attention of the people at large has been more frequently and forcefully directed to the importance of open houses and fresh air, and a relatively far higher standard of both public and private sanitation exists in the modern health resort than in the average other prosperous city of today.

In our health resorts for tuberculosis the average housekeeper or hotelist actually often becomes more proficient in sanitary science for practical purposes than some practitioners of medicine I have known! That such a state of improved public and private sentiment and practice should exist is but to be expected, for with progressive doctors and qualified nurses constantly keeping before the citizens of the community the necessity and advantages from a health view-point of extreme cleanliness, thorough and frequent disinfection, sunlight, fresh air, good wholesome food, reasonable hours for labor with ample time for recreation—into this type of social atmosphere the resort visitors is initiated and he usually readily enough responds to the subtle influences of an environment where the daily talk is not of crops, the price of cotton or other commodities, or stocks and mortgage bonds, or interest rates or profit-sharing, or manufacturing, or political, or commercial enterprises; but on the other hand the uppermost theme impresses him as being health and

how best to promote it, of good appetites with improved digestions, of rides, drives, walks, recreations, pleasant diversions, recuperations, physical improvements, free bathing, etc., etc. As a matter of fact I have often questioned if the average transient at a health resort for tubercular patients did not after hearing so much talk along hygienic and sanitary lines, especially if he is a superficial observer and quick to arrive at conclusions, form the opinion that so much consideration on the part of the majority of individuals he comes in contact with from his liveryman up to his doctor, really betoken a dread on the part of the people of infection. In this respect it is possible at times the great attention these vitally important matters receive in the modern health resort, are sometimes undoubtedly ascribed to an improper *motif*, when the real facts are that the doctors have infected the masses of the people with a degree of enthusiasm upon these subjects which make many of them real evangelists for the restoration of health and the prevention of disease.

Briefly summarizing permit me to present the following conclusions:

Non-tubercular individuals necessarily incur no danger of infection with tuberculosis in visiting or residing at modern health resorts frequented by patients with pulmonary tuberculosis.

There is less danger of contracting pulmonary tuberculosis in a well regulated modern health resort than elsewhere.

Health resorts for tuberculosis are almost invariably places where it has been originally noted that the percentage of deaths from tuberculosis among the natives was remarkably small.

The climatic and other local conditions which originally permitted so small a development of tuberculosis

among the natives continues to render them relatively (not absolutely) immune, and as well to beneficially impress the visitors to such resort.

Considered in the light of most recent scientific knowledge it is doubtful if the infective dangers of street expectoration are so great as we have previously believed.

The average greater degree of sanitary knowledge and practice prevailing to an extent among all classes at a modern health resort is also highly conducive to the physical improvement and gain showed by the immense majority of visitors to our mountain resorts.

The most careful attention to sputum indoors, thorough ventilation and open-air life so much in vogue at the modern health resort for tuberculosis renders them safer and should be continued.

Trigeminal Neuralgia — (Surgical Treatment).

Illustrated.

BY BENJAMIN MERRILL RICKETTS, CINCINNATI, OHIO.

Neuralgia of one or more branches of the fifth nerve is one of the most desperate conditions not to result in death that the surgeon encounters; desperate because of the agonizing pain, and equally so because of the necessary radical treatment and its consequences.

Its etiology is not understood, but the change of posture (from quadrupedal to bipedal) has no doubt been a factor in its causation. Man is the only animal in which the ganglion of Gasser rests upon a bony foundation such as the bony ridge of the petrous portion of the temporal bone.

It has been suggested that both congestion and anaemia of this ganglion may induce pain in the nerves originating in it; also that the adhesions in and about the ganglion resulting from congestion or anaemia would cause pain.

In any event, the pain limited to the area supplied by this ganglion and its branches must of necessity originate in and be conducted within them.

This ganglion with its series of branches has been shown to be both motor and sensory in function and for this reason has been difficult to contend with, as the removal of the ganglion or destruction of its branches has not only given relief from pain, but also resulted in loss of sensation, more or less motion and use of the corresponding eye. It is sometimes self-limited, disappearing as suddenly as it appeared.

Pathology.—The cells found by Sanger in the ganglion were fewer, shrunken, irregular in shape, and nu-

clei-indistinct or absent. There was increase of interstitial connective tissue with some pigmentation and sclerosis, all of which has been verified by Horsley, Rose, Putnam and Podrasky, but its pathology, like its etiology, remains unknown.

NEURECTOMY AND NEUROTOMY.

Neither neurotomy, neurectomy or the injection of osmic acid will give permanent relief, as regeneration of the nerve, with function, will occur. Thiersch says that it will do so after 5 cm. have been removed.

Excision of the branches of the fifth nerve has long been done, in many ways. Sections carrying in length from a quarter to a half-inch have been removed at their exits.

As all of these methods have failed to accomplish the desired purpose, more radical measures, such as the various intracranial operations herein mentioned, have been resorted to.

The results obtained by avulsion indicate that the terminal branches are the source of the pain. The deeper branches, such as the lingual, cannot be approached except by attacking the ganglion or its branches as they emerge from the cranial cavity.

Historical.—Conant, 1851, divided the second branch of the fifth nerve for neuralgia. 'Cornoohan, 1858, reports three cases in which he excised the trunk of the second branch of the fifth nerve beyond the ganglion of Meckel for severe neuralgia.

Schuppert, 1866, for neuralgia resected the second branch of the fifth pair of nerves in the sphenomaxillary fossa at the foramen rotundum of the sphenoid bone, resulting in a cure.

Andrews, 1874, made repeated resections of the

branches of the trigeminal nerve for neuralgia. McLean, 1882, cured a case of trifascial neuralgia by resection of the nerves. Garretson, 1883, employed a surgical engine to resect the second branch of the fifth nerve at the level of the foramen rotundum for neuralgia.

Sutton, 1887, divided the third nerve at the foramen ovale.

Bernays, 1888 and 1895, reports cases in which he removed the three branches of the fifth nerve at one sitting. The method was first resorted to by Langenbeck, whose name it bears.

It was my good fortune to see Bernays do this operation in 1898.



FIG. 1.—(La Place.)

Wyeth, 1892, torsioned the three main sensory branches of the fifth nerve for neuralgia.

Fuller, 1905, divided the nerves at their distal exits and removed them by avulsion, while Lexer, 1906, divided the branches as they made their exit from the skull and removed by avulsion.

LaPlace's Method (Fig. 1) is to divide the nerve as it emerges from its foramen and grasp it with forceps, then twist it slowly one-

half turn to the right and then one-half turn to the left, gradually allowing the nerve to become wrapped around the forceps until its body and filaments are extracted. In this way all of the nerve tissue is removed, making regeneration impossible. This permanently destroys absolutely all the nerve tissue beyond the foramen of exit.

Three patients operated upon by this method by La Place have been free from pain two or more years.

The operation is one to be commended and practiced before the more radical operation of Lexer is resorted to.

The technique of Lexer's operation is as follows:

1. Cut flap within lines indicated.
2. Divide zygoma with saw at each extremity.
3. Cut away malar arch with chisel.
4. Retract flap and remove zygoma.
5. Detach soft tissues to infra-orbital crest.
6. Separate origin of external pterygoid.
7. Base of skull and foramen ovale now exposed.
8. Divide third branch at exit.
9. Ligate middle meningeal artery and vein.
10. Tampon for bleeding from pterygoid venous plexus.
11. Remove second and first branches if necessary.

The first, second and third branches may be severed and avulsed. Hemorrhage may be severe from the vein that emerges from the foramen ovale to join the pterygoid plexus, or injury to the plexus itself may cause hemorrhage. If the bleeding is severe and continued, the operation may be completed at a subsequent sitting, preferably on the second day (two-step operation).

Removal of either one or all three branches has been successfully accomplished by the method of Lexer with

most gratifying results and without mortality. Van Hook reports three such operations.

The absence of mortality, together with immunity from pain, should at once place this in advance of all intracranial operations for the relief of neuralgia of one or all of the branches of the fifth nerve. Should it be necessary to remove the ganglion, this route should be given preference to any other.



FIG. 2.—The lines indicate the groove made with the drill to remove the inferior dental nerve; also mental foramen at which the nerve is divided. (Ricketts.)

Removal of the Inferior Dental Nerve (Fig. 2) may be accomplished by incising the soft tissues, including the parotid gland, in a perpendicular line from one-half inch below the zygoma, and the same distance in front of the ear, to

within an inch of the angle of the jaw. The periosteum is then retracted and an opening made down upon the posterior dental foramen.

The nerve is then divided and avulsed according to LaPlace, after dividing it at the mental foramen. If not successfully done in this way, the inferior dental canal may be opened by the drill as far forward as the mental foramen. That portion of the nerve beyond the anterior dental foramen should also be avulsed.

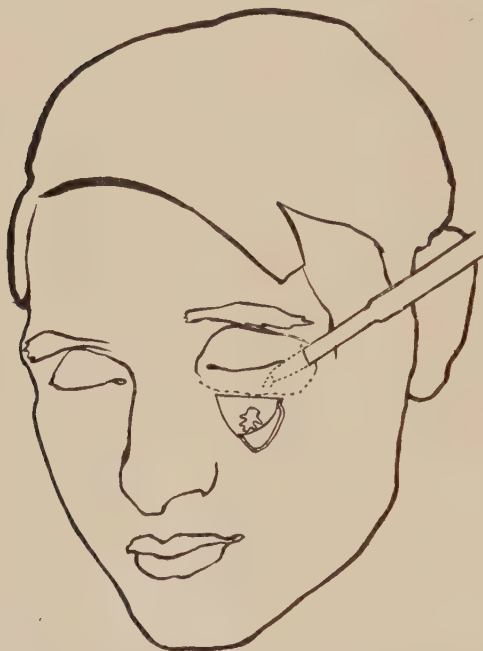
This permits of the complete destruction of the inferior dental nerve in such a way that it cannot possibly become regenerated.

Langenbeck's 1869 Method (Fig. 3) is intended to remove the painful branch, but pain will return from one to two years.

There has been no mortality or loss of vision resulting from the removal of the branches in this way.

The second branch of the fifth nerve is removed in the following manner:

1. Introduce a knife one and one-half inches long, with a sharp point and narrow blade, at the external canthus, making only a small puncture.



2. Keep close to the outer wall of the orbit until knife enters lower part of fissure.

3. With a slight twisting motion, cut off the nerve near Meckel's ganglion. The infra-orbital artery will also be severed, resulting in an immense hæ-

FIG. 3.—Langenbeck's method of dividing the infra-orbital nerve within the fissure.

matoma which will subside in a few days.

The divided nerve may be removed by grasping its distal portion with forceps introduced through an incision one inch long made to the foramen of exit.

Removal of the inferior dental is accomplished by making an incision from the lobes of the ear behind the inferior maxillary anteriorly to a point corresponding to the mental foramen. The first molar tooth is extracted and the jaw divided with a chain saw. Ample space is thus obtained.

By careful dissection, the inferior dental and lingual branches are found and removed. The bone is united by wire and wound closed.

The injection of osmic acid was first done by Neuber, who suggested that its introduction by needle into the ends of the nerve immediately after neurotomy or neurectomy would give relief. This is best accomplished through an open incision down to the nerve trunk.

The acid hardens the nerve tissue and therefore gives the same effect as constriction by ligature.

Murphy and Eastman have each had considerable experience with the use of this remedy.

Gold foil of sufficient strength to resist growth force placed upon the floor of the middle fossa covering the foraminae after the branches have been divided intracranially, will probably prevent regeneration of the branches with the ganglion. If this can be accomplished, the removal of the ganglion may be dispensed with and thereby greatly lessen, if not entirely do away with, mortality in intracranial neurotomy.

BIBLIOGRAPHY.

CONANT, D. S.: American Medical Monthly, New York, 1857.

CARNOCHAN, J. M.: American Journal Medical Science, Philadelphia, 1858, ns xxxv, 134-143.

DITTANDY, E.: *Reflections sur un cas de neuralgie trifaciale traitee par la nervrotomie.* Strasbourg, 1865.

VON PATRUBAN: Fall von unterbindung der karotis bei neoralgien des trigominus. Wiener Medicinische presse, 1866, vii, 461.

SCHUPPERT, M.: New Orleans Medical and Surgical Record, 1866, i, 16-20.

STORRS, M.: Proceedings Conn. Medical Society, Hartford, 1867, ns iii, 78-86.

BARNICK, H.: Die behandlungen der Neuralgien im Gebiete des nervus trigominus durch neuractomy. Berlin, 1871.

ANDREWS, E.: Chicago Journal Nervous and Mental Diseases, 1874, i, 293-296.

ALBERT, E.: Neuralgien des trigominus 5 durch neurectomy geheilt. i fall nach der neurectomy gebessert entlassen. Bericht d Naturw. med. Verein in Innsbruck (1877) 1879 viii 3 hft 51-54.

LOSSEN, H.: Neurectomy des ii astes des v nach osteoplastischer resection des jochbeins nebst vorschlag zu einer neuen schnittfuhrung. Centralblatt f chirurgie. Leipzig, 1878. v 65-70.

BESSARD, A.: Contribution a l'etude des procedes operatoires dans les cas de nevralgie du trijumeau Basel Paris, 1882.

BRAUN, H.: Neurektomien des zweiten astes des nervus trigemini nach osteoplastischer Resektion des Jochbeins. Centralblatt f Chirurgie, Leipzig, 1882, ix 249-255.

MACLEAN, D.: Physician and Surgeon, Ann Arbor, Mich., 1882, iv 499.

DUMONT, F.: Deutsche Zeitschrift f Chirurgie. Leipzig, 1883, xix, 51-73.

GARRETSON, J. E.: Annals Anatomy and Surgery, Brooklyn, N. Y., 1883, viii, 158-160.

Neuber, Centralblatt f Gesam Therapie, 1884.

CHAVASSE, T. F.: Medico Chirurgical Transactions. Dublin, 1884, lxvii, 145-156.

CHAVASSE, T. F.: British Medical Journal, London, 1884, i, 411.

ROCKWELL, F. W.: Annals Surgery, St. Louis, 1885, i, 345-350.

CLUTTON, H. H.: St. Thomas Hospital Reports, 1885, London, 1886, xv, 213-224, i pl.

SUTTON, J. B.: British Medical Journal, London, 1887, ii, 1331.

OBALANSKI, A.: Wiener Klinische Wochenschrift, 1888, ii, 777.

BERNAYS, A. C.: International Journal Surgery and Antiseptics, New York 1888, i, 10.

DUPLAY: Arch. gen de Med. 16, 1889.

VON HIPPELL: Arch. f Ophth. 217, 1889.

OBALANSKI, A.: Wiener Medicinische Presse, 1889, xxx, 337-340.

ULLMAN, E.: Arbeiten u jahresbericht d k k erst Chirurgie Univ-Klin zu Wien (1888) 1889, 107-116.

BORELIIUS, J.: Resktion af tredje grenen af nervus trigemini vid foramen obale Hygeia Stockholm, 1890, lii, 45-52.

FERRIER: Socy. Biology, 1890.

WYETH, J. A.: Denver Medical Times, 1892-3, xii, 10.

SARTIRANA, T.: Gazette Med. di Torino 1895, xlv, 957-965.

BERNAYS, A. C.: St. Louis Medical and Surgical Journal, 1895, lxviii, 90.

DUBOIS: Bulletin, Medical, Paris, 1895, ix, 1065.

RUPRECHT: Jahresbericht d gesellschaft f nat u heilunde in Dresden. 1896-7, 33.

DUBOIS: Assoc. Francè de Chir. Proc-verb, Paris, 1896 x 288-293.

BRUNA, L.: Boll d Chin Milano, 1896, xiii, 1-8.

YOUNG, W. G.: Medical Mirror, St. Louis, 1896, vii, 64-67.

GWYER, F. W.: New York Medical Journal, 1897, lxvi, 363.

ROSE, W.: Practitioner, London, 1899, lxii, 255-265.

COOK, J. R.: Journal American Medical Association, 1899, xxxii, 138.

GORGAS, K. W. H.: Drei Falle von Resektion des iii trigeminusastes am foramen ovale Kiel, 1904.

FULLER, W.: Journal Michigan Medical Society, Detroit, 1905, iv, 152.

LAPLACE: N. Y. Med. Jour. Vol. lxxxii, No. 24, pp. 1197-1199, Dec. 9, 1905.

LEXER: Surg. Gyn. and Obs. Journal, 1906, pp. 47-50.

EASTMAN: Jour. Amer. Med. Asso. 1906, pp. 557-560.

LIGATION OF COMMON CAROTID.

Ligation of the common and external carotid arteries has been practiced for trifacial neuralgia. Among its earlier advocates were Nussbaum and Langenbeck, who as early as 1869 abandoned its practice, owing to a high mortality. This being before the discovery of asepsis, there is every reason to believe that the mortality was due to infection, and when coupled with the fact that ligation of the common carotid is now done without mortality, confirms this belief.

Much benefit has resulted from this operation, but there are now methods which are more radical, beneficial and lasting, that should first be employed, except when it should be associated with neurectomy, neurotomy, avulsion, or partial removal of the ganglion.

Historical.—Gross, 1883, reviewed this method, combining it with neurectomy.

Hutchinson, 1885, reported two cases in which he resorted to the method, while Fowler, 1896, and Ricketts, 1896, each report cases in which both the common and external carotid arteries were ligated above the occipital and facial arteries.

Ricketts, 1906, has made five additional operations of this character. The first patient, 96 years old, made an uninterrupted recovery with comparative freedom from pain.

BIBLIOGRAPHY.

GROSS, F. H.: *American Journal Medical Science*, Philadelphia, 1883, ns lxxxv, 366-378.

HURCHINSON, J. C.: *New York Medical Journal*, 1885, xli, 401.

FOWLER, G. R.: *New York Polyclinic*, 1896, vii, 110-114.

RICKETTS, M.: *Virginia Medical Semi-Monthly*, Richmond, 1896-7, i, 326-328.

RICKETTS, B. M.: *Cincinnati Lancet Clinic*, 1895, ns xxxiv, 61.

REMOVAL OF GANGLION.

Removal of the ganglion of Gassa was an innovation which gave promise of curing neuralgia of the fifth nerve with a reasonable mortality, but time and improved technique have failed to lessen the mortality even though immunity from pain may be assured.

An operation of any character for any cause that does not of itself produce death, with a mortality of twenty-five or thirty per cent., cannot reasonably be advised.

The result is that methods with less mortality are constantly being devised, hoping that improved technique will in the meantime lessen the mortality in intracranial operations that have already been devised, if they are to be the methods of choice.

The destruction of the ganglion as now practiced causes so much damage to the smaller nerves not associated with it in causing pain, that much improvement in technique must be made before it should be resorted to.

Of the two or three hundred intra-cranial operations reported, many cases of recurrence, varying in degree, have taken place. This would indicate that all of the ganglion had not been destroyed.

Total destruction of the ganglion by removal or otherwise, will forever destroy the function of the nerve fibres originating within it, so that there can be no question that the removal of the ganglion will prevent neuralgia of the fifth nerve.

The relief of pain is probably proportionate to the amount of destruction of the ganglion, and the same is probably so in destroying the branches ramifying from it, for their complete destruction will also prevent neuralgia associated with their fibres.

Complete removal of the ganglion would probably result in a higher mortality than has been given for both the complete and incomplete operations, because of more time required, necessitating more anaesthesia, loss of blood, shock and trauma.



FIG. 4.—Horsley operation. Showing skin incision.

Horsley's Method, 1891 (Fig. 4). The operation devised by Horsley in 1890 consists in making a skin in-

cision starting from the anterior extremity of the zygoma and running upward to the temporal ridge, following that line, and descending along it to the asterion. A flap including all of the tissues down to the bone, is then reflected. The temporosphenoidal lobe is exposed by removing the whole squamous portion of the temporal bone with a trephine and forceps, and opening the dura by an incision corresponding to the opening in the bone. A broad, smooth retractor is then slipped underneath the lobe and slowly and steadily raised, thus elevating the temporosphenoidal lobe from the floor of the skull. The guide to the fifth nerve is the upper border of the petrous bone. Elevating the brain a little more, it will show the tentorium and the point at which the nerve passes beneath it can be seen. The ganglion

is then reached by following along the nerve, and after it is fully exposed, it is enucleated together with its sensory root.

This operation proved extremely dangerous because of the injury inflicted upon the brain and the great risk of infection that opening the dura incurs. Hemorrhage from the veins at the base of the skull proved very troublesome and was in one instance sufficient to cause death.

Rose-Andrews, 1892 (Fig. 5), operation is as follows:

1. A skin incision beginning near the external angular process of the frontal, curved horizontally just



FIG. 5.—Line of incision in the Rose-Andrews operation.

above the zygoma, then downward just in front of the ear, terminating near the angle of the jaw.

2. Reflecting a flap of skin and subcutaneous tissue.

3. Sawing through the zygomatic arch and reflecting it downward with the attached temporal muscle.

5. Ligation of the internal maxillary artery.

6. Location of the posterior sharp edge of the external pterygoid plate of the sphenoid. The foramen ovale is found near the base.

7. A probe is passed through the foramen and the ganglion is transfixed.

8. A trephine is applied to the base of the skull just external to the foramen ovale.

9. The bone between the foramen and the trephine opening is removed with a Rongeur forceps.

10. The ganglion is removed by curettage. The dangers of this operation are so great and the disadvantages so apparent that it has been generally abandoned. Among the chief difficulties encountered may be mentioned the small space within which one must work, the abundant hemorrhage that obscures the field of operation, and the arduous, if not impossible task of reaching the ganglion through this opening in the base of the skull. Hemorrhage from the middle meningeal artery resulting from a wound received during the operation is frequently a source of trouble and is extremely difficult to control.

The greatest danger, however, arises from accidental injury to the Eustachian tube, which lies in close proximity to the operation wound. In all cases in which infection occurred, it was from the Eustachian tube. Rose lost one of his cases forty-eight hours after the operation from meningitis, the infection starting from a wound in the tube. Caponotto lost one four days after the operation from the same cause.

Unimportant modifications of this method have been introduced by a number of surgeons. Park employed an H-shaped, Artieda a U-shaped, and Doyen a vertical skin incision. It is extremely doubtful, however, if any who followed this route succeeded in removing the ganglion.

The Hartley-Krause, 1892 Method (Figs. 6, 7 and 8).—The operation that is practiced by nearly all sur-



FIG. 6.—Hartley-Krause operation. Skin incision.

geons is that originated by Hartley, of New York, and later employed independently by Prof. F. Krause. As this is the method that has been chosen in the past by most surgeons, its technique will be considered somewhat in detail.

The steps of the operation are as follows:

1. A horseshoe-shaped skin incision having its base at the zygoma, the greatest distance between the two

arms being about three inches and the vertical measurements from the top of the arch to the base about the same.

2. Resecting an osteoplastic flap, the bone at the base of this flap being broken well down below the zygoma.

3. Separation of the dura from the floor of the middle fossa.

4. Exposure of the second and third divisions of the

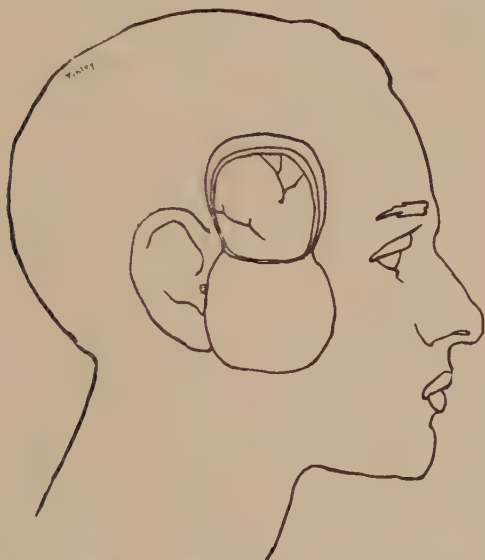


FIG. 7.—Hartley-Krause operation. Osteoplastic flap reflected, exposing dura.

fifth nerve as they enter the foramen rotundum and ovale.

5. This step in Hartley's operation consisted in resecting the second and third divisions between their foramen of exit and the Gasserian ganglion. He made no attempt to remove the ganglion.

6. Recognition and extirpation of the ganglion. To Krause belongs the credit of perfecting the technique

of this step of the operation and of first removing the ganglion by this route.

As soon as the brain has been lifted from the middle fossa and the hemorrhage checked, the second and third



FIG. 8.—Hartley-Krause operation. Ganglion exposed.

divisions can be readily recognized by the folds produced by elevation of the dura. The ganglion lies at the junction of the axes of the second and third divisions. The two branches are uncovered, the dissection being carried upward until the ganglion which rests between two layers of the dura is completely exposed. The ganglion is then seized with a pair of artery forceps, the second and third divisions are divided close to the base of the skull, and the ganglion removed by twisting the forceps.

Difficulties Encountered in the Course of the Operation.—In discussing in detail of the different steps, as above outlined, the first that deserves consideration is

the means to be employed in gaining access to the cranial cavity after the temporal flap has been outlined.

Hartley in his operations used a chisel to cut a groove in the bone corresponding to the skin incision. This groove went only to the cirteous plate, excepting at the upper angle, where it went through the whole thickness of the bone. An elevator was introduced at this point and the remaining portions of the bone fractured.

Krause cut through the bone with a small circular saw to a dental engine. Keen recommends either Cryel's drill or Pyle's chisel.



FIG. 9.—Doyen temporo-sphenoidal operation. Skin incision.

Temporosphenoidal Method of Doyen, 1894 (Fig. 9.)

—Doyen at first used a modification of the Rose-Andrews method in reaching the ganglion. In 1895 he proposed a new route which he called the tempororsphenoidal. This operation consists in making a skin incision

similar to that of Hartley's and reflecting a flap which includes all of the tissues down to the bone. The zygomatic arch is resected close to the condyle, the choronoid process is divided, and the temporal fossa denuded. A trephine opening is then made at the level of the sphenotemporal suture and all of the bone removed with a cutting forceps down to the foramen ovale. This method, it will be seen, has the advantage that it gives a large operation field and permits the easy removal of the ganglion.

Cushing's Direct or Intra-cranial Method (Figs. 10 and 11).—A modification of the Hartley-Krause opera-

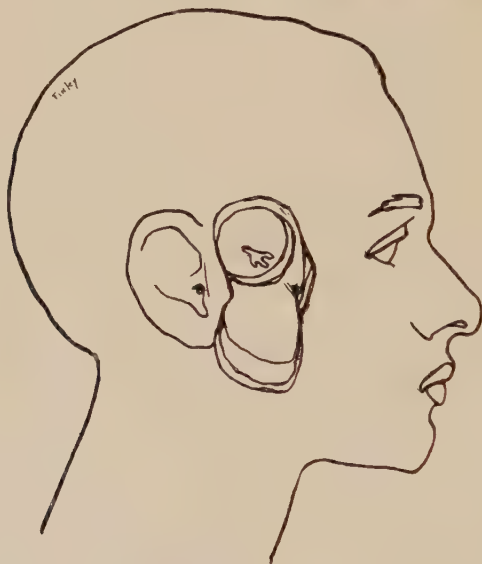


FIG. 10.—Cushing's infra-orbital method. Ganglion exposed.

tion; possesses important points of superiority over the original operation as here outlined. The steps of Cushing's operation are as follows:

1. An inverted U-shaped flap five centimeters high, with a base four centimeters wide, corresponding to the zygoma. This is considerably smaller than the flap reflected in the Hartley-Krause operation.

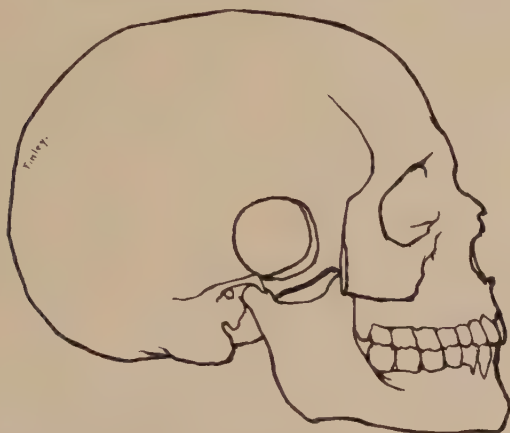


FIG. 11.—Cushing's operation, showing size and position of opening in skull.

2. Incision of the temporal fascia concentric with the skin incision, with subsequent elevation of the periosteum of the zygomatic arch.

3. Division of the zygomatic arch at two points corresponding to the extremities of the skin incision.

4. The temporal fossa is then cleared of the temporal muscle over an area equal to the skin flap. This muscle with the zygoma is then retracted strongly downwards. In this way, the lower part of the temporal fossa is exposed as low down as the attachment of the external pterygoid muscle. The skull is then opened at the most prominent part of the great wing of the sphenoid. Cushing prefers a mallet and gouge for making the primary opening. With a Rongeur forceps the opening is enlarged downward to the ridge between the

temporal and zygomatic fossae. The middle meningeal artery crosses the center of the opening in the skull.

The succeeding steps of the operation, elevation of the dura, liberation and extraction of the ganglion, do not differ materially from those described under the Hartley-Krause method. In closing the wound, as no attempt has been made to preserve the bone flap, it is only necessary to replace the zygoma and to suture the muscle and skin flap. Cushing does not drain.



FIG. 12.—Kronlein-Lexer method. Showing line of bone detachment.

Kronlein's Method, 1897 (Fig. 12).—A line passing from the tip of the ear to the supraorbital foramen, and a line from the lower tip of the ear to the same point, will permit of an incision that will avoid injury to the facial nerve supplying the orbicularis oculi.

An incision is made three-fourths of an inch anterior to the ear to the upper line, following it two and one-

half inches toward the external canthus, then downward to the lower line.

The zygoma is cut by saw in each line, thus allowing the flap to be retracted downward. This is better accomplished after the bony tissue has been removed, which should always be done.

Separation of the soft tissue from the skull is done to infra-temporal crest and made movable by detaching the origin of the external pterygoid. The base of skull and foramen ovals are thus exposed.

The third branch is now to be seen with its accompanying meningeal artery. The vessel is ligated, the skull opened with chisel, drill, trephine or Rongeur forceps, the finger introduced to the dura, which is pushed back to the foramen spinosum, dura detached and the brain lifted up.

The sitting posture will allow the cerebral fluid to gravitate into the spinal canal and thereby give more space in the cranial cavity. This will permit of the brain being more easily displaced from the floor of the middle fossa. The ganglion is then dissected out in the manner described by Hartley-Krause.

The technique of Lexer's and Kronlein's operations (Fig. 13), until the foramen ovale is reached is the same. Kronlein's operation is then completed as follows:

1. Skull opened by chisel or drill.
2. Opening made larger (including foramen ovale) with forceps.
3. Introduce finger to dura.
4. Push dura back to the foramen spinosum.
5. Separate dura to foramen ovale.
6. Third nerve now seen inside of skull.
7. Raise body to semi-sitting posture.

8. Wait until cerebral fluid gravitates into spinal canal.

9. Dissect away ganglion.



FIG. 13.—After Lexer. Shows the incision, the lines of limitation. Ganglion exposed after removal of the bone.

Unpleasant Consequences.—

1. Injury to the motor root of the fifth nerve, paralyzing the muscles of mastication.

2. Paralysis of the buccinator, while never complete, results in more or less ankylosis due to (Quenu) trophic changes and contraction of the temporal and masseter muscles.

3. Complete corneal and conjunctival anesthesia, resulting in ulceration, opacity and softening of cornea. (Cause not known, but trauma and infection suspected). Injury to superficial petrosal nerve also suspected.

4. Ptosis, which is due to injury to third, fourth and sixth nerves.

5. More or less loss of hearing resulting from paralysis of the tensor tympani, due to injury to the motor root of the fifth or to edema of tympanic membrane.

Conclusions.—Operations in the order of their selection:

1. Avulsion of the distal branches.
2. Avulsion with ligation of common and external carotid arteries.



FIG. 14.

3. Removal of the branches of the nerve (Lexer).
4. Lexer's method combined with that of LaPlace.
5. Lexer's method combined with that of LaPlace and ligation of the common and external carotid arteries.

6. Removal of the ganglion and neurectomy of the distal branches.

7. Removal of the ganglion combined with neurectomy and ligation of the common and external carotid arteries.

8. Neurotomy, neurectomy or the injection of osmic acid gives only temporary relief.



FIG. 15.—Line indicates area of anesthesia produced by removal of the ganglion of Gassa.

9. Plugging the foraminae with fragments of bone cut from the neighboring plate will prevent regeneration of the nerves passing through them.

10. The method of Kronlein is an innovation, having given better results with less deformity, mortality, loss of time, motor paralysis and less risk of loss of vision.

11. Relapse occasionally occurs after intracranial

operations, but in such cases removal of the ganglion is supposed to have been incomplete.

12. All intracranial operations for the removal of the ganglion should be abandoned because of the high mortality, if for no other reason.

Historical.—

Horsley, 1891, was one of the first to report an intracranial operation to remove the ganglion.

Hartley, 1892, reported a new method to remove the second and third branches of the fifth nerve, illustrating it with two patients on whom the operation had been done.

Andrews, 1892, reported two cases of removal of the semilunar ganglion through the floor of the skull.

Doyen, 1893, reports the intracranial method for removing the ganglion of Gassa.

Harrison, 1894, reported two cases of excision of the ganglion with no recurrence two years later, and Hutchinson, 1894, made an intracranial resection of the second division of the fifth nerve for epilepsy.

Abbe, 1897, reports the operation of Hartley, in which he implanted rubber tissue over the foramen ovale and rotundum.

Murphy, 1896, and Keen, 1896, each report cases treated by the removal of the Gasserian ganglion.

Bartlett, 1901, reported two cases in which he resorted to excision of the ganglion, resulting in a cure in each, and Halstead, 1903, reported seven cases treated in this way.

BIBLIOGRAPHY.

HORSLEY: British Medical Journal, p. 1139, 1891.

HARTLEY, F.: New York Medical Journal, 1892, iv, 317-319.

ANDREWS, E.: International Medical Magazine, Phila., 1892, i, 479-487, and Jour. A. M. A., Nov. 20, 1893.

ROSE: British Medical Journal, 1892.

- FINNEY: Johns Hopkins Bulletin, 1893.
- PITMAN, J. J.: International Clinics Phila. 1893, 3s, i, 139-146.
- STOKER, W. T.: Dublin Journal Medical Science, 1893, xcv, 177-186, 1 pl.
- DOYEN: Assoc. Franc de Chir Proc-verb, etc. Paris, 1893, vii, 531-534.
- D'ANTONA: Atti d r accad med-chir di Napoli, 1893, xlvii, 6-10.
- ESKERIDGE & BAKER: American Journal Med. Science, 1894.
- QUENU: Bull Acad. of Med., 1894.
- TAYLOR, W. J.: Times & Register, Phila., 1894, xxvii, 184-186.
- LEONARD, ARMAND: De la resection intracranienne du trijumeau dans les cas de nevralgie rebelle de la face, Paris, 1894.
- AKERMAN, J.: Hygeia, Stockholm, 1894, lvi, 593-608.
- GERSTER: Medical Record, p. 803, 1895, and Annals of Surgery, Vol. xxiii.
- TURNER: British Medical Journal, 1259, 1895.
- SAENGER: Neuer Centralblatt, 1895.
- FOWLER, G. R.: Transactions American Surgical Association, Phila., 1895, xlii, 500.
- STEWART, R. W.: Medical News, Phila., 1895, lxvi, 452.
- TIFFANY, L. McL.: Annals Surgery, Phila., 1895, xxi, 510-518.
- SALOMONI, A.: Clin Chir Milano, 1895, iii, 287; 361.
- SMITH, A. H.: Medical Review, N. Y., 1895, xlviii, 706.
- KRAUSE, F.: Verhandlung d deutsch Gessellschaft f Chirurgie, Berlin, 1895, xxiv, pt. 2, 145-170, 1 pl.
- MERCHANT: Bulletin Soc. chir., 1896.
- MURPHY: Trans. III, Ill. State Med. Society, 1896.
- KEEN: American Journal Medical Science, 59, 1896.
- MIXTER, S. J.: Transactions American Surgical Association, Phila., 1896, xiv, 457-459.
- TIFFANY, L.: Annals of Surgery, N. Y., 1896, xxiv, 575-619.
- BIONDI, D.: Gasser Suppl al Policlin, Roma, 1897-8, iv, 952.
- CABECA, C.: Archiv de Med., Lisbon, 1897-8, i, 145-153.
- KRAUSE, F.: Muenchener Medicinische Wochenschrift, 1897, xlv, 1150.
- CODIVILLA, A.: Rendiconto Statistico Dell anno 1897, Imola 1897.
- MASSOULARD, EAMILE: Les intercentions sur le trijumeau intracranien dans la nevralgie faciale rebelle Lyon, 1897.
- VON BONXCOFVV, H.: Kronlein Finska Lak Sallsk Handl Helsingfors, 1897, xxxix 188-192.
- ABBE, R.: Annals Surgery Phila., 1897, xxv, 97-99.
- KEEN & SPILLER: American Journal Med. Science, 1898.
- THOMAS, J. L.: British Medical Journal, London, 1898, i, 487.
- DOLLOMGER, J.: Pest Med-chir. Presse Budapest, 1899, xxxv, 177-180.
- CARSON: St. Louis Medical Review, 1899.
- BARKER: Journal American Med. Association, April 28, 1900.
- ALBE, R.: Journal American Med. Association, 1900, xxxiv, 1098-1100, 1 fig.
- SCHWAB: Annals of Surgery, 1901.
- BARTLETT, WILLARD: Annals Surgery Phila., 1901, xxxiii, 683-695, 2 ch 2 fig.
- KRAUSE: 27 Muenchener Medicinischer Wochenschrift, 1901, xlviii 1043-1046 3 fig.; Lo 98 1103 1 fig.
- GOYANES, J.: Dr. San Martin Otorinolaringol Espan Madrid, 1901, iv 116-120, 1 fig.
- GORDON, T. E.: Transactions Royal Academy Medicine Ireland, Dublin, 1903 xxi, 216-224.
- HALSTEAD, A. E.: Medical & Surgical Reports, St. Luke's Hospital, Chicago, 1903-4, 80-116.

- ABBE, R.: Transactions American Surgical Association, Philadelphia, 1903, xxi, 117-123.
- SPILLER: Journal American Medical Association, Oct. 1, 1904.
- BROECKAERT, J.: Bulletin Academie Royal de Medicine de Belges, Bruxelles, 1904, 4s xviii 91-105.
- BROECKAERT, J.: Presse oto-laryngologie belges Bruxelles, 1904, iii 105-121.
- VAN GEHUCHTEN, A.: University Pennsylvania Medical Bulletin, Philadelphia, 1904-5, xvii, 50-59.
- HARRISON, D.: Liverpool Medico-chirurgical Journal, 1904, xxiv, 321.
- NIBLOCK, W. J.: Indian Medical Gazette, Calcutta, 1904, xxxix 377.
- BREWER, G. E.: Annals Surgery, Philadelphia, 1904, xl, 264.
- HUTCHINSON, J., JR.: Intracranial resection of the second division of the fifth nerve for epilptiform neuralgia. Lancet, London, 1904, i 1044.
- DAVIS, G. G.: University Pennsylvania Medical Bulletin, Philadelphia, 1904-5, xvii, 46-50.
- SCHWARCZ: D. Liec veistnik u Zagrebu, 1904, xxvi 101-103.
- HIRSCH, W.: Journal Nervous & Mental Disease, N. Y., 1904, xxxi, 33.
- MARIEN, A.: Union Medicale du Canada, Montreal, 1904, xxxiii 470-475.
- SHERMAN, H. M.: Journal American Medical Association, 1904, xliii, 941.
- Munchen Medicinische Wochenschrift, 1905, lii, 776.
- BADDENHEUER: Deutsche Medicinische Wochenschrift, 1905, xxxi, 86.
- CUSHING, H.: Journal American Medical Association, 1905, xlv, 773-779.
- HALSTEAD: Transactions Western Surgical and Gyn. Association, 1905, pp. 130-171.
- MOORE: Carolina Medical Journal, 1905, 564.
- VAN HOOK: Surg. Gyn. and Obs., January, 1906, pp. 8-13.
- CUSHING: Annals of Surgery, January, 1906.

A Word About Diagnosis, With Illustrative Cases, Especially the Report of a Case of Metastatic Abscess From Intestinal Intoxication.

BY DR. STEPHEN HARNSBERGER, CATLETT, VA.

Diagnosis, Webster tells us, is the determination of a disease by means of distinctive marks or characteristics. The original meaning of the word is to distinguish and to distinguish means to know by visible marks.

To the young graduate, who goes out to work with the text-book ear-marks of disease fresh in mind, the way to his diagnosis seems plain enough. But is it a commonly occurring fact that "distinctive marks and characteristics" of disease loom up to glare the way to a diagnosis? Let the observation and experience of the care-worn physician answer.

As a matter of convenience, diagnosis may be considered under three heads:

- (1.) Mediate diagnosis,
- (2.) Intuitive diagnosis,
- (3.) Non-diagnosis.

Mediate diagnosis is in harmony with reason. Mediate diagnosis, therefore, by indubitable certainty, does not admit of any reasonable cause of doubting. Intuitive diagnosis is in harmony with instinct. Intuitive diagnosis is knowing by direct cognition, with utility for a result and is, therefore, justified. Non-diagnosis involves a contradiction. It is the result of human weakness and may be ascribed to one of two causes:

- (1.) Ignorance.
- (2.) Carelessness.

Ignorance is latent knowledge undeveloped, for what is unknown to-day may be known tomorrow. Ignorance, therefore, is the undeveloped mine of knowledge. In the absence of this truth, there could be no progress—to-day and tomorrow would remain as yesterday.

Carelessness is unfolded knowledge not comprehended. If comprehended, there could be no non-diagnosis, for knowledge made manifest evolves into diagnosis.

Ignorance is finite and at times excusable.

Carelessness is optional and always unpardonable.

A mediate or intuitive diagnosis is always better for the longevity of the patient, while a mediate or intuitive prognosis unquestionably rebounds best to the welfare of the physician. And while this is commonly true in regard to both diagnosis and prognosis in general no one can deny the fact that we, as physicians, should never, not even in the seemingly most trivial case, treat lightly or carelessly the factor of diagnosis. According to Osler, I believe it is, we cannot make more than 40 per cent. of mediate diagnoses; then allowing 10 per cent. of intuitive diagnoses, we readily see what a fearful stretch of darkness we have to grope through in caring for the other half of our cases. The very fact that 50 per cent. of our work is done in blindness, is much the more the reason why we should strive assiduously, persistently and intelligently to discern the hidden conditions of the diseased human body—by body I mean the unity of moral, mental, physical, including family history, personal history, habit and the influence of environment.

Not long since I heard a well known local surgeon say that a certain distinguished author and clinician of Philadelphia was the finest diagnostician he had ever known. And what do you think he gave as a reason for

the opinion he expressed? This—that he had seen the doctor come to his lecture hall, examine the patient, announce his diagnosis and treatment, and that almost invariably the sequence—a cured patient—proved the correctness of his diagnosis. Now, it seems to me, if this be the criterion of one's success as a diagnostician, that very few of us need worry or grow old over our shortcomings in this one particular at least, for with any of us, in what proportion does the number of our deaths compare with the number of our apparent cures? Is the paucity of our number of deaths to the multiplicity of our number of cures the way to judge as to the character of our diagnostic acumen? And if this is not the way, in what other way can one arrive at a correct judgment in the matter? It is not the only way, for post mortems also reveal the correctness, as well as the faultiness, of our diagnosis. But as corroborative revelations of post-mortems are rare, comparatively speaking, there should be nothing to make us dissatisfied with our diagnosis based on the preponderating proportion of our cures, unless it be that inner consciousness of the truth that even in the majority of our cases, we are just a bit doubtful in our own minds of the correctness of both our diagnosis and prognosis, believing as every experienced and honest physician does, that perhaps nine cases in ten would get well without our professional direction and guidance and perhaps also that some others now dead might be living.

We hear a great deal and we read a great deal about the importance of a correct diagnosis, and we see the publishers' announcements of volume after volume on the subject of diagnosis and, yet, if we come down to every-day facts and exclude the many cases that would have gotten well without our intervention, we see that the actual number of cases requiring diagnostic acumen

is very few. Hence, it has occurred to me that the very fact of the happy ending of this great preponderance of less important cases tends to and does render us careless and inattentive, so that when we are brought to face a really puzzling case, our diagnostic acumen is not found well edged and for want of this constant training we can't see so far into the mill-stone as we should do. This, it seems to me, is one reason, at least, why the few succeed and the many fail as diagnosticians. The many by inattention to the little cases fail to grasp the conditions presented by the fewer unusual cases. A hit and miss method of diagnosis does not educate the physician and it is often-times disastrous to the patient. The experience resulting from a close observation of every case, will on many an occasion lead to a correct diagnosis, even without the confirmatory evidence of plain objective symptoms and physical signs. The judgment trained by close observation and long experience learns to correctly interpret the collective clinical findings and a correct diagnosis is often made in advance of the condition itself. How and wherefore the diagnosis is made, is not always explicable even by the one who makes it. It is simply this that the mental affinities of the diagnostician are satisfied and all else is shoved aside as of no present import. It is true that we may study each case and we may be deceived but in the deception there is this consolation—it has made us more intelligent and so put us more nearly in harmony with reason.

The basis of success in diagnosis is found in instinct and experience, with a thorough understanding of the theoretical ground-work as a necessary concomitant condition.

Carelessness in clinical observation lessens experience, which in turn tends to inhibit the faculty of diag-

nosis and naturally the value of diagnosis decreases as carelessness in clinical observation increases. Therefore, gentlemen, and especially the younger men in the profession, do not scan over any case if you would know the hidden case, for you will find later on in your professional career that the hidden case is, as a rule, only a bigger evolution of the slight, and, as you thought, innocent little case.

The stitch in time saves nine in medicine as well as in stockings but you cannot know where and when and how to put that stitch unless you first recognize the rent that needs it.

Imbued with the importance of the first slight deviation from the normal and its cause, you can the more readily trace the next step in the beginning degeneration and so on to its ultimate pathological effect, so that when you meet with the unusual case you are in the best possible position for retrospective reasoning and from the tangible facts thus elicited, you have at least a reasonable tenable basis for a rational diagnosis.

No man, however intelligent, can skillfully and properly repair a complicated machine unless he knows every piece and part of its structure; the place of each piece and its bearing upon every other part of the machine; and not then can he right what is wrong unless he recognizes what is wrong. Nor can we physicians intelligently and skillfully right the physical or mental wrongs of our patients unless we first recognize the physiologic error or pathologic condition present.

“The sun’s rays fall on each separate fruit, which it paints and ripens as though that were its sole business.”

Give intense interest to each separate case. It helps to meet the emergency and to save life, and, after all, to save life is greater than being great.

MEDIATE DIAGNOSIS.

My case-records were destroyed by fire about four years ago, hence I cannot give the full history of this case.

Lt. Commdr. M., U. S. N., aged about forty-five, was discharged from hospital in or near Boston and ordered to report in Washington. Came to see his wife who boarded near here. This was in November, 1898. I found him with slight fever, pulse 100, respiration 22; rales general—asthmatic breathing, with cough. Some muscular soreness. Urine albuminous. Tendency to constipation. Treatment mostly eliminative. He did well. I reported his condition as very favorable. Infact, my report was so markedly contrary to the “records” in Washington, that on December 24, 1898, Dr. John H. Clark, Medical Director of the Navy, came up to see about him. This was the third time in as many years, so I understood, that he had been discharged from hospitals to report in Washington and each time he had gone to bed again with the same general symptoms, especially the symptoms of serious kidney disease. The medical department of the navy had fully determined to retire him. The records since he entered the navy were such as to single him out as a proper subject for Bright’s disease.

During our long talk over the case, Dr. Clark repeatedly said: “I wish I could see the case as you do for Mr. M.’s sake, but the records are against him—he’ll never be fit for duty.” I argued otherwise and heid out that he would ultimately be well. Finally Dr. Clark asked me, “How long do you want to cure him?” I answered, “If it were any other patient, I would say two weeks, but with his history, give me one month.” When Dr. Clark went back to Washington he asked for three

months' leave for our patient—he got thirty days. The thirty days expired about the 25th of January following. I had Mr. M. report for duty, I think, on January 20th, or four days before the expiration of his "leave," in order to have him escape the inevitable medical survey. I did this, because albumen, etc., still showed in his urine and I fully realized that this knowledge would then and forever end his connection with the navy. He reported as stated above, and was assigned to a boat at Key West a few days later.

From copy urinalysis made November 10, 1898, by medical director in charge U. S. Naval Museum of Hygiene at Washington, I find "albumen-trace." It was soon after this examination that he came under my care.

I sent all the specimens of urine to Dr. Monte Griffith, Washington, D. C., who handed them over to the late Dr. Wm. Fisher (G. W. University Hospital) for examination.

One of Dr. Fisher's reports, which gave albumen and casts, was dated January 9th, 1899.

Dr. Griffith in sending this report to me, says: "You will see from analysis that your patient has kidney lesion. * * * The granular hyaline casts are unmistakably from the tubules of the kidneys. The mucus most probably from the bladder. I infer your patient's kidneys and bladder are both affected. You, of course, will know. Hope your treatment may benefit him."

About January 19th, I had another urinalysis made. Concerning the report is the following letter from me to the Lt. Comdr., M., dated January 24, 1899: "Found your note on my return home. Received Dr. Griffith's letter at Charlotte but it is now mislaid. However, it says in plain language that you are better. Now, I am still of the opinion that I can, with your best determina-

tion to get well, direct you pretty steadily on the road to health. Keep all the records for me—urine analyses, etc.”

Another examination was made by Dr. Fisher on January 23d. Dr. Griffith in sending this report to Mr. M., says: “The enclosed report of analyses made this day shows a most decided improvement in your condition under the treatment of your physician and I sincerely hope you will do nothing to give yourself a ‘step-back.’ ”

I argued that the “weak kidneys” were only relatively weak—not hopelessly diseased, and based my belief on the following reasons:

(1.) The general appearance of the patient, in my judgment, did not indicate chronic nephritis.

(2.) Because my treatment, almost purely eliminative, gave such encouraging results in so short a time.

(3.) The lack of a persistent amount of albumen continuously eliminated.

(4.) The absence of cardio-vascular changes. If the renal lesion was chronic and of adequate gravity to cause his retirement from sea-faring work, in the nature of the case, there should have been cardio-vascular changes of sufficient positiveness as to have appreciably raised the general blood pressure. The significance of hypertension as a precedent or consequent condition of both cardiac and renal perversion should not be overlooked. So far as I could ascertain, there had been no knowledge of high blood pressure up to the time the patient came under my observation—there was none during that time.

I looked upon the condition as possibly pre-nephritic but certainly not nephritic. That was in 1898. Mr. M. has been promoted twice since then, is now captain, in

good health, and in active service. The test of time bears me out.

INTUITIVE DIAGNOSIS.

A. W. T., male, aged three months. Breastfed. Always healthy. Family history good. Patient began to cry at 11 a. m., February 19, 1905. His mother could not quiet him, so sent for me. I got there about five o'clock. Found child still crying. Examined mouth for pins and then his clothing. Discovered none. Removed clothing and looked for evidences of trauma, with negative result. Heart and lungs normal. Temperature normal. On account of crying it was almost impossible to examine his abdomen, but I imagined I could detect a little fullness. Right foot seemed to be a little larger than the left, but gave no pain on moving or handling it. There was absolutely no known symptom nor physical sign to guide in the diagnosis. What was the matter, and what was I to do? I anticipated an inflammatory focus from intestinal toxæmia and so informed the child's parents. I ordered antiseptic applications to the foot and abdomen, and calomel and intestinal antiseptics internally. White of egg diet. I left with instructions to call me early if patient was no better or worse. Messenger had me up at 5 a. m., February 20th. Found temperature 106° F. and facial, as well as general, appearance indicative of intense toxæmia and impending death. Abdomen enlarged. I lost no time in emptying and washing out the colon. The result confirmed my diagnosis that far; temperature ran down two degrees. Otherwise could see no change. Continued applications to the foot.

The parents of the child were new-comers—had only been here about twelve months. This was their only boy and a gap of eleven years since birth of youngest

girl. I knew what it meant if he should die; so advised consultation.

Dr. R. E. Wine, of Brentsville, Va., was called. He, too, recognized the gravity of the case and the unusual lack of symptoms. He advised continuation of treatment. Saw patient next morning and evening. Condition about the same. Used colon tube and kept up treatment. At 2:30 a. m., February 22, was called again. Abscess had formed on inner aspect of right foot and including ankle joint; made free opening, irrigated and dressed wound; temperature lowered to 100 1-2° and child looked better. February 23, temperature 99°; February 24, temperature 98 1-2°. Improvement continuous and rapid.

The assumption that the abscess in this case was caused by intestinal intoxication is certainly not unreasonable. Had I made an examination of the pus from the abscess, the findings may have shown a connection between the impaired intestinal function and the simultaneously occurring abscess. I regret very much that I did not do this.

I recall the report (Krokiewitz, etc., *Amer. Med.*, August 20-'04), of a croupous pneumonia in which, during the first few days, there developed a swelling of the left shoulder joint, resulting finally in the formation of an abscess. An examination of the pus revealed pure cultures of the Frankel-Weichselbaum diplopneumococcus. Very few similar cases have been described in literature.

NON-DIAGNOSIS.

Was called to see a school girl, aged twelve. Very slender and pale. Father an alcoholic and inclined to rheumatism. One brother had been treated for nephrolithiasis. One sister for necrosed tibia.

Two days before I saw her, on her return from school, she complained of feeling weak and nervous. Could not sleep on account of an undefinable uneasy feeling of distress; rather inclined to tears. No appetite, tongue coated, bowels sluggish, kidneys moderately active, temperature normal, respiration 20, pulse 120 and irregular. Periodical uneasiness — cardiac beats visible to the eye.

My first thought was that she had been running or romping too strenuously, but she denied both. Then it occurred to me that she might be entering upon the changes incident to puberty. The anxious and uneasy feeling kept up for three days. The second time I saw her, I questioned her again about running and romping, then she told me that she and two other girls were “jumping up and down” on a board over a rather deep ditch, when the board broke and precipitated them suddenly to the bottom. As she was so very frail, I made the diagnosis—traumatic shock to the nervous system and heart. Three days later (seventh day of sickness), I found an ankle joint somewhat swollen and tender, with 1-2 degree of temperature. This joint was better at my next visit but a knee joint was tender and swollen, temperature still up. I then inquired more closely into her previous history and found that she had quite a severe attack of rheumatism when three years of age. Now, had I done this at my first visit, as I should have done, I would no doubt have suspected latent rheumatism, and at once put her on appropriate treatment. As it was, seven days’ time and opportunity had been lost. The cardiac condition grew steadily worse. I lost my patient.

The Management of Puerperal Eclampsia.

BY EDWARD C. REGISTER, M. D., CHARLOTTE, N. C.

President Medical Society of the State of North Carolina, Ex-President Board of
Medical Examiners State of North Carolina, Professor Practice of Medicine
North Carolina Medical College, Physician-in-Chief, St. Peter's
Hospital, Etc., Etc.

In this short paper it is not my intention to discuss at length the etiology of eclampsia. The subject is too obscure and our knowledge of it is too defective to deal with it farther than it relates to the treatment. It is plausible at least in most cases to believe that the conditions that we find in the kidneys and in the blood and nervous system during pregnancy are directly or indirectly due to a toxemia. Just the nature of this toxemia, the character of the poison or infection that produces it, is of course not known. It has not been demonstrated, but we have every reason to believe that eclampsia is due to the presence in the system of a toxine. All the symptoms or signs or combinations of them that we can recognize in the pre-eclamptic state suggest that some kind of a poison has been introduced or retained in the circulation.

The general practitioner usually depends upon the state of the urine to give him the correct clinical index to the pre-eclamptic condition. He notes the quantity of urine excreted in twenty-four hours, the amount of albumin and urea it contains and how they influence the feelings of the patient as they increase or decrease. Albumin may be wanting and a physiological amount of urea may be present before or during and even after eclamptic convulsions. I have noticed this in many cases. It is generally believed that the quantity of urea eliminated is fully as significant and may be as good

a guide to the real condition of the patient as the amount of albumin excreted. I do not mean to convey the idea that convulsions are caused by urea alone, for it is generally believed that they are not; besides, it is well known that large quantities of this substance may be injected into animals without causing toxic symptoms. It is, though, suggestive of danger when the quantity of urea eliminated is large and is quickly diminished. As a clinical guide it is valuable, but it is too often misleading to be depended upon as a clinical guide.

Several other materials may be present in the urine, with qualities equally poisonous and even more so than urea, and still an eclamptic attack may or may not appear. Just the extent of the perverted functions of the kidney and the amount of toxins that are in the tissue that are dependent upon the abnormal digestive functions that are so often seen during pregnancy can only be inferred. It is certainly reasonable to believe that the relationship that exists between these important excretory organs and eclampsia is very close.

It is easy to observe that digestive disturbances which are so common in the pregnant state, produce many symptoms similar to those noticed in the pre-eclamptic patient. This relationship between the digestive tract and the kidneys and eclampsia ought to impress itself upon the ordinary mind, when we so seldom see eclampsia in patients where the alimentary tract is in an active normal condition, even if the kidneys show signs of impending danger. On the other hand, if the kidneys are apparently normal, and the digestive tract badly deranged, eclampsia is not uncommon. If we were to bear this in mind we would not continue to look for some specific cause for eclampsia, but would look for a few general causes, such as the mistakes in diet,

the toxic influence of bile and the absorption of products, such as originate in intestinal putrefaction and other processes that take place along this canal. To these general causes may be added the metabolism of the tissues of the foetus itself. This often, I feel sure, increases to a great degree the poisonous material in the maternal blood. For clinically it is well known that when the foetus dies, or when the living child has been delivered, in a large per cent. of cases the eclamptic convulsions cease. In addition to this it is certainly easy to observe that there is a much greater pre-disposition to eclampsia in twin and triple pregnancies than in a normal pregnancy, and that the tendency to eclampsia increases proportionately as pregnancy advances and the consequent increase of foetal metabolism. Besides, it is common knowledge that the mortality of pregnant women decreases rapidly as the post-partum condition is reached. Statistics show that the maternal mortality in ante-partum eclampsia is 46 per cent. During the puerperal intra-partum eclampsia 25 per cent.; while in post-partum eclampsia it is only 7 per cent. These statistics ought to suggest a great deal, when we come to consider more specifically the treatment of this condition.

The prevalent practice among many physicians to make monthly examinations of the urine for the detection of albumin alone, is not sufficient. Enough information as to the real condition of the patient is not in this way available, for we must bear in mind that fully 15 per cent. of eclamptic cases have no albumin urea. While it is proper, of course, for us to note the kidney insufficiency, the quantity of the urine passed, its specific gravity and the amount of urea and albumin eliminated, other observations are essential to make the clinical index complete. High arterial tension, headache,

dizziness, gastric disorders, mental and physical lassitude, disturbances of the bowels, of the skin, the liver and the lungs, their failure to properly perform their functions, either separately or collectively, are all clinical evidences of danger, and if we want to intelligently understand the real condition of our patient we must carefully note all these signs of danger. With these ideas as to the nature of eclampsia, we naturally think of the diet, of effective elimination, the activity of all the excretory organs and of the foetal metabolic products, when we come to specifically consider the treatment of this condition.

In all cases where we see a well-developed abnormal puerperal condition, a reduction of the quantity of nitrogenous food should be insisted upon, and almost an exclusive milk diet substituted. When the symptoms improve and we have less evidence of approaching danger, a more liberal diet may be advised, such as fish and the white meats. It has been my rule for several years, when I think the case justifies it, to begin at once with an absolute milk diet, and later on to increase it, when the case improves. The patient should take a great deal of light water—sleep in well ventilated apartments and take gentle exercise and massage. A great many things ought to be taken into consideration in attempting to prevent toxins in the blood of a pregnant woman. Regular bathing and warm clothing and regular habits ought to be insisted upon, besides, she should avoid all irregularities such as late meals, late hours, anxiety, grief and financial and social cares. If by her negligence or her mistakes or ignorance her system becomes infected and she has evidences of danger, the presence in her system of poisons, the process of elimination should be encouraged. In mild cases—really in a large per cent. of cases—where evidences of danger

are easily recognized, in the pre-eclamptic state, a restricted diet and general stimulation of the functions of the kidneys and intestines are usually sufficient, but in more severe cases it may be necessary for the patient to be kept perfectly quiet in bed, with only a milk diet, and all of the eliminative organs stimulated and every effort available resorted to in order to remove the symptoms of impending eclampsia. The most important of all the preventative measures employed in eclamptic cases is the milk diet. It is invaluable in these cases. With a reasonable amount of care, if this diet is insisted upon, patients will usually do well. To accomplish elimination the specific method pursued is not very important. A few of a great many drugs can be used that will accomplish what we have in view, certainly so far as the bowels are concerned. To encourage the action of the skin the body should be properly clothed, massage should be used and warm baths, or occasionally a hot pack or a hot air bath may be resorted to. Sometimes, in order to get a diaphoretic, diuretic action, together with some action upon the liver and intestines, a pill composed of calomel, digitalis and squills each one grain with 1.20 grain of muriate of pilocarpin should be given. I find this very beneficial, especially if the symptoms are at all suggestive of immediate danger. By this procedure we encourage all the eliminative processes, and unless the case is a very unusual one, this treatment will arouse these special functions without any other form of treatment.

There is no rule or set of rules that will be applicable in every case; no medicines or class of medicines that will be suitable in all cases. In a certain per cent. of cases, despite the proper diet and the correct hygienic management, the energetic stimulation of all these eliminative processes, evidences of danger will still persist

and our patient will develop convulsions. Then, we must take into consideration the propriety of bringing on premature labor. A physician with large experience who has had access to facts and statistics ought not to have any trouble to arrive at a correct conclusion as to what his duties should be in such cases. I have always thought that palliative measures in such cases were usually dangerous, that premature labor should at once be advised. Many claim, however, that labor induced by the usual methods increases the reflex excitability; that it produces or may introduce a new infection into the system, and that the time necessary to accomplish the operation causes an exhaustion that nearly always proves fatal. We believe this is a mistake. Our method of giving chloroform in this country when this operation is undertaken, usually prevents reflex excitability, and the time necessary to obtain our ends is usually very short. There should not be, in the majority of cases, over forty or fifty minutes between the beginning of labor and the termination of pregnancy, consequently there is not much time consumed or shock or exhaustion produced. In skilled careful hands, with suitable environments, the danger of introducing a new infection into the case ought to be very little—these different ideas, this conflict of medical opinion is natural and may continue as long as we have so many different beliefs as to the cause and pathology of this disease. My desire to direct attention to these different ideas is my excuse for presenting this paper; besides, I have a desire to develop more specific conclusions on these essential but now debatable points. Observation teaches us that no one treatment at this stage of this condition can be followed in every case, no matter how intelligent it may appear and how applicable it may be in a large number of cases. Many women will die and

many will recover in spite of the treatment; many of them will get well with no treatment at all. No specific method ought to be advised or insisted upon. It is the general principles here that we wish to discuss; the selecting of the best of the various methods and their application in different cases. With this idea the principles of the treatment of eclampsia proper can be considered in all its phases under three heads:

The control of the convulsions;

The elimination of the toxins, and

The emptying of the uterus.

While I mention these indications of treatment in order of their importance, the first and second can be carried out at one time, and the third at the discretion of the physician, or as the nature of the cases suggests. The best, the safest and the most effective of all the anti-eclampsics is chloroform. Every writer and every physician, so far as I know, has this confidence in the drug. It may not be indicated in every case. Many times the patient has only one convulsion and the other things that we do are sufficient to give relief; especially is this the case when the convulsions come on after the delivery of the child. Morphine can very often—really in the majority of cases—be given in puerperal convulsions, with perceptible benefit. If chloral hydrate and bromide of potassium are given (and they usually are), the danger of stupor and the coma that follow convulsions may be greatly increased. This should always be kept in mind, consequently it is well enough to oppose the giving of large doses of this drug. We expect when morphine acts normally, for it to check all the alimentary secretions. This is an objection that is not very great, because we expect, regardless of the amount of effort it takes, to stimulate to the fullest, every secretory organ in the body and do it quickly and thoroughly,

even if morphine has been given. It is natural to expect the alimentary secretions, especially after morphine has been given, to be a little scanty, but it is quite easy to overcome this and give our patient the benefit of the anti-spasmodic effect of this very valuable drug. Its use may be objected to, as I have said, on account of its increasing the tendency to stupor and coma. Here lies a danger, certainly if it is carelessly and recklessly given, as it is sometimes, for many of us often get anxious—really excited—and do too much, or do things we ought not to do, when we have to deal with cases like these, where dangerous and distressing symptoms are so noticeable. Opinions differ a great deal as to the value of *veratrum viride*. At one time I used it in every case, but now have abandoned it entirely. While it has value in many cases, as a rule its good effects are too often disappointing. The prevalent belief at one time was that when this drug was given in sufficient quantities to keep the pulse below 65, that it would in nearly all cases stop the convulsions. This was not my experience, when this drug was mainly relied upon. The idea that still prevails to some extent that it has some unexplainable curative power over puerperal convulsions, never appealed to me. Its virtue, so far as can be explained, depends upon its diaphoretic-diuretic-anti-spasmodic action, and we have drugs, several of them, that will act better in this way than *veratrum viride*, drugs that more completely control spasms and drugs that are better eliminatives. While we are using all of the available means possible to control the convulsions, we can at the same time consider the methods to eliminate the poison or poisons which we believe to cause these convulsions. Not one, or a few of them, but every eliminative organ in the body should be brought into action. Prompt and thorough cathartics ought to be ob-

tained, and there is no better plan to accomplish this than the immediate and liberal administration of croton oil, with large doses of calomel, followed with enemas of sulphate of magnesia. This method, if carried into effect, will quickly establish a satisfactory alimentary elimination. Pilocarpin hypodermically combined with hot packs and large normal salt enemas is my method of producing diaphoresis. There may be objections to the plan, but I have learned to believe it to be the best. It is easily accomplished and always effective. I have never seen the throat and lung complications that are occasionally noticed, when pilocarpin is given in the eclamptic state. In many of my cases dry-cupping is used over the kidneys, followed by hot fomentation. This produces some diuresis. I always encourage my patients to drink a great deal of light mineral water, if they can do so between the convulsions. If they are in a stupor I rely on the normal salt enemas. Evidences of approaching exhaustion and collapse should be treated as in the same conditions under other circumstances. I have always been convinced that it is a rational procedure to empty the uterus, under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible. There is no doubt in my mind that many cases can be saved, and that many cases can be lost, when this principle is not promptly acted upon and intelligently carried into effect. The idea that the eclamptic uterus should not be disturbed until after the os is fully dilated never seemed to be very rational to me. That the irritation produced by artificially aiding nature brought on convulsive seizures in a more aggravated state than when left to nature, are not the conditions noticed in my practice. In specific cases, when we are discussing the best procedure we ought to bear in mind that observations

show that the danger is essentially past in fully 90 per cent. of cases after the uterus has been emptied, if accomplished early after the eclampsia begins and if produced in a reasonable length of time and with a reasonable amount of skill. Convulsions do not always stop when this method has been pursued, but it is easy to observe that they become less and less dangerous, when the case is converted into one of post-partum eclampsia, which, as we have said, is almost without danger, the mortality not reaching over seven per cent.

We have very few writers in this country now, who reject altogether local interference during an attack of intra-partum eclampsia. There is, however, a great difference among them with regard to the extent of the interference. It seems now from the various reports (reports that seem to be the most reliable and that represent the ideas of the best obstetricians in the world), that it is the best to empty the uterus as quickly as possible, in cases of this disease, certainly when the attack takes place during labor, and the only great difference of opinion seems to be as to the method to be employed. It is generally agreed among those who advocate local interference, that in the second stage of labor, after securing dilatation, there is every reason to believe that the proper procedure is to empty the uterus immediately and the operation should be promptly performed. This is accomplished with no additional danger to the mother or to the child. In pregnancy and in the first stage of labor the objections offered to the rapid delivery is the undilated cervix. Here it is that authorities differ so widely in their opinions as to the best plan. I believe that the expectant or the palliative method of treatment that is often insisted upon in these cases will almost surely be followed by death of the child, and fully thirty-three per cent. of the mothers will die. On

the other hand, if a more radical treatment is adopted and the uterus promptly and skilfully evacuated by appropriate surgical means, the child's life is saved and the mother is practically subjected to very little danger. As to the various methods of procedure at this point in the treatment of eclampsia, a plan that I favor more than any other, and the one that seems to be the most popular at the present day, is the mechanical dilatation of the cervix and the prompt extraction of the foetus. This method is safe and effective when properly performed. To do this operation it ought, in every case, to take from forty minutes to an hour and a half. Certain cervical conditions, even when we take this much time, will yield with great difficulty to manual dilatation, and if the operator is in too great a hurry, he is likely to entail lacerations of the cervix and uterus that are unnecessary and may be dangerous. In the majority of cases I believe it is a safe and intelligent treatment after all preventative measures have been employed and the eclamptic stage has been reached, to at once consider only three things, they have been referred to, namely, control the convulsions, eliminate the poisons from the system, and lastly, terminate pregnancy at once. The first two indications will not be again referred to. The extraction of the foetus, unless it can be expertly performed with an intelligent understanding of the mechanism of dilatation, particularly in primipara, better results will, in all probability, follow the expectant plan of treatment. It is not uncommon, in careless and reckless hands, to hear of many accidents, such as rupture of the uterus, when rapid manual dilatation of the os is undertaken, before the internal os has disappeared. This condition is noticeable in primipara, especially up even to the end of pregnancy. Uterine rupture and death has very often fol-

lowed the careless performance of a rapid manual dilatation. Very often unnecessary shock, caused by the dragging of the foetus through an imperfectly dilated track is observed. Consequently the greatest care should always be taken in this manipulation. I have seen more than one case where premature extraction has been followed by many unnecessary and dangerous lacerations of the lower uterine segment, and where the life of the patient was needlessly jeopardized. While I have great faith in the efficiency of the immediate and prompt removal of the foetus, I recognize the many objections to it and the many dangers connected with it. Through its careless performance, many lives—certainly of children—have been sacrificed, and on this account I shall always advocate with a feeling of hesitancy this treatment, for fear it will be indiscriminately and unskilfully performed.

A Safe and Efficient Method of Treating Fractures of the Femur With a Double Angular Plaster of Paris Splint by a Sectional Method.

BY J. H. DOWNEY, M. D., GAINESVILLE, GA.

I think every physician or surgeon who has had one of these fractures to treat will agree with me that it is no easy task to give his patient a reasonable degree of comfort and freedom of movement and a so-called (yet not perfect), result; and would gladly welcome any method which would give the patient freedom of movement, ease and comfort and at the same time the best possible results.

I will say nothing of the symptoms or etiology as any of our textbooks will give these in full. I am not going to burden the profession with another wholly new method but want to combine the essential points of all the previous methods into one; that will meet every indication for any fracture of the femur whether it be of the neck, upper, middle or lower third of the shaft. Scudder says, "The object in the treatment of a fracture is to reduce the fracture, maintain reduction immo-



FIG. 1.

bilized until union is firm and restore the limb to its normal usefulness. Do the methods given in any of our text-books of today meet the above indication? They do not, hence we have to use all sorts of means of extension and counter extension when the truth is, if the fracture was really immobilized no extension would be necessary. As you will see, in the use of this double angular plaster of paris splint there is nothing new in

this splint except the method of application in sections which permits the limb being placed in any angle of flexion or degree of adduction or abduction, thus allowing the long fragment to accommodate itself to the



FIG. 2.

short one and the flexion serves as a point of fixation which assists materially in immobilizing the fragments. This splint can be applied by anyone as easily as a straight one and in the usual way except that the first section must be applied and allowed to set, for if pressure is put on it to make extension while wet it will dent in and set with an irregular surface which will cause pressure and pain and probably necrosis of the part. I have devised a table with an extension and counter extension in any fracture of the leg or thigh which mechanically reduces the fracture and holds it absolutely steady and gives the physician access to any part of his

patient without the slightest movement, which is a great assistance in fractures.

The arrangement for fractures of the femur is shown in Figure 1. Let us assume a fracture of the femur; first, pad the foot and leg to just above the knee with cotton wadding, then begin at the base of the toes and go up in the usual way to just above the knee with it flexed at the desired angle; make it a little thicker just below the knee and allow it to set firm; place the patient on the table, fasten foot to foot-piece and adjust knee strap as shown in Figure 2; elevate whirl arch until pulley knee and center or (counter extension) post are in line, then make your traction by raising and lowering



FIG. 3.

the lever on the ratchet until fracture is reduced, this hold firm, then telescope half of the top on which the body and shoulders rest, remove the clothing out of the way, pad with cotton wadding and begin with the upper

section—first by smearing a little plaster dough around the upper end of the lower section and apply your plaster roller in the usual way, carrying it well up to the eusciform cartilage, reinforce at the hip by placing between the layers of plaster a few strips of wire gauze and when the whole has set firm, loosen the knee strap and put a few extra turns at the welding point and your dressing is complete as shown in Figure 3, and one that thoroughly mobilizes the limb, and fixes it to the body. This prevents pain and discomfort, gives the patient freedom of any movement, such as getting in and out of bed to attend the calls of nature, sitting up or walking by the aid of crutches. It assures perfect results.

Extra Uterine Pregnancy With Report of Twelve Cases and No Death.

BY J. W. LONG, M. D., GREENSBORO, N. C.,

Emeritus Professor of Diseases of Women and Children in the Medical College of Virginia, Richmond.

I desire to report briefly all the cases of ectopic pregnancy that have come under my care and to make comments on certain phases of the subject.

I use the term "extra-uterine" in the title for the reason that although eleven of the cases herein reported were tubal, one was probably ovarian, while all were extra-uterine.

I found on referring to my records that I have operated on twelve cases. Six of them have been reported in a former paper, therefore, will not be mentioned except in barest outline. Seven of the cases occurred

within the period embraced by March 6, 1905, and April 16, 1906.

All twelve cases were treated by either abdominal or vaginal section and all recovered. It is rather remarkable what good health these women enjoy after recovering from their malady and operation.

The two first cases occurred in my earlier surgical work before I began to systematically keep record of my cases and beyond the fact that one was ruptured and the other unruptured and both recovered, I have no data.

Case 1.—Tubal pregnancy, rupture, vaginal section, recovery.

Case 2.—Tubal pregnancy, not ruptured, abdominal section, recovery.

Case 3.—Tubal pregnancy, rupture at ninth week, abdominal section, recovery.

This patient had been sterile for several years. She ruptured the tube at the end of the ninth week of pregnancy by sneezing while sitting at the table. The rupture occurred on the anterior surface of the distended tube. There was a well formed placenta in the tube.

Case 4.—Ovarian pregnancy, rupture probably due to palpation, abdominal section, recovery.

The only interesting features about this case were that the patient was the wife of a physician, had not heretofore been pregnant, had when seen the symptoms of an eight-weeks' ectopic gestation, and when the abdomen was opened the tubes were found to be normal, but the right ovary was the site of a newly ruptured cyst containing blood clots.

Case 5.—Ruptured tubal pregnancy, pelvic abscess, vaginal section, recovery.

This case is noteworthy because of the extreme suf-

fering and emaciation and the recovery of the patient following an operation done three months after the rupture had occurred.

Case 6.—Tubal pregnancy, attempted abortion, rupture, septic peritonitis, vaginal section, recovery.

The interesting points in this case were the attempted abortion by the patient inserting a pencil into her uterus, the intense septic infection following the tubal rupture and enormous quantity of blood clots and placental tissue removed with the tube at the operation.

Case 7.—Sterile eleven years, tubal pregnancy, rupture at the eighth week, abdominal section, recovery.

Mrs. B., residence High Point, N. C., aet. about 35, white, married, the mother of several children, the youngest of which was eleven years old, had missed two periods when she was seized with an acute pain in the left side of the pelvis. Her physician, Dr. W. J. Vestal, was called and prescribed for the pains. The next day a scanty uterine flow appeared. The pains and flow continued, requiring frequent doses of morphine. After ten days Dr. D. A. Stanton was called in consultation and diagnosed ruptured tubal pregnancy. By this time a larger tender mass choked the pelvis and distended the lower abdomen especially on the left side. The temperature was slightly elevated and the pulse 90. The writer was called and concurring in the diagnosis opened the abdomen as soon as preparations could be made. The operation was done at the patient's residence. The mass consisted principally of blood clots hiding a ruptured left tube, which in turn contained a part of the placenta. The striking feature of the case was the absence of inflammatory changes. The intestines seemed to be simply stuck to the coagulated blood which lifted them up *en masse*.

The tube was quickly emucleated, the peritoneum cleansed and the incision closed without drainage. The convalescence was very prompt and satisfactory.

Case 8.—Tubal pregnancy, rupture at the seventh week, operation two hours post trauma, recovery.

Mrs. J. C. S., white, aet. 26, married seven years, was never pregnant and periods have always been regular. Her family history is good except one brother died of tuberculosis. At 18 the patient had tuberculosis of the spine and was sick three years resulting in a marked degree of kyphosis. For a year prior to her present trouble she wore a plaster of paris jacket with most noticeable benefit.

Her last period appeared on Jan. 16, 1905. March 6th she was taken with rather sharp cutting pains in the left side of the pelvis. The writer saw her at twelve o'clock and learning of the absence of the periods for seven weeks suspected a tubal pregnancy with threatened rupture and so advised the patient. No vaginal examination was made because the patient did not seem to be very ill and she was so fat that bimanual palpation could not be satisfactorily done. At this time her pulse was 80 and her temperature 98.6. *Deod. tr. opii.* was prescribed and the patient instructed to remain quietly in bed and to notify the writer on the least exacerbation of her symptoms. At 5 p. m. the same day a hurry call was sent to see this patient. When I reached her it was quickly evident that she was greatly shocked. In reply to a question she said "I am almost dead." The pulse was barely perceptible, the temperature was 97, and the extremities cold.

Fortunately the patient lived near the car line. She was gently lifted on to a cot which in turn was placed on the platform of the street car and rapidly taken to the hospital. Without removing the patient from the cot her

plaster jacket was quickly cut away and ether administered. The anaesthetic revived the pulse a little and the patient was cautiously placed on the operating table. "Rapidity" was the slogan. By seven o'clock or two hours after the evident time of rupture the abdomen was opened and the bleeding tubal vessels clamped. The abdomen contained a large quantity of fresh blood and clots. The left tube was ruptured from a pregnancy near its fimbriated end. The bleeding mass was tied and cut away, the peritoneum carefully cleansed and left full of salt solution and the abdomen closed without drainage. The recovery was prompt and uneventful. The patient has become very stout and is now eight months gone with an intrauterine pregnancy.

Case 9.—Tubal pregnancy, rupture about the tenth week, profound shock, operation, recovery.

Mrs. F. R., white, aet. 31, has been married five years. She was never pregnant, periods have always been regular and normal and she has never been seriously ill..

On March 20, 1905, her period appeared as usual, but she was nauseated and suffered with severe headache. April 23rd the period appeared again on time and lasted the usual three days. From this time on the patient felt that there was "something wrong" in the pelvis. She consulted a very capable physician who said her uterus needed curretting. After this examination the local conditions were rather worse but she had no uterine flow.

May 8th, after bidding "good evening" to a friend and locking the door she was suddenly seized with an agonizing abdominal pain that continued without remission. The writer saw the patient in about half an hour afterwards. She was profoundly shocked, almost unconscious, pulse very feeble and frequent, skin blanched, temperature 97. and the patient writhing in

pain. It was three days before the patient's temperature reached normal. May 16th she was taken to the Greensboro Hospital and the abdomen opened. The right tube was found to have contained a pregnancy and had ruptured, pouring an immense quantity of blood and detritus into the abdominal cavity. It was deemed best to drain this case. The convalescence was rapid and the ultimate recovery perfect.

Case 10.—Tubal pregnancy, rupture, appendicitis and peritonitis complicating, operation eight months after rupture, recovery.

Mrs. R. L. L., aet. 22, married Feb. 8, 1904. Her periods were always irregular. I quote the patient's words: "The period in May appeared on the 10th and in June on the 15th. I occasionally had nausea but no other symptoms of pregnancy. My August period appeared on the 26th and from that time until September 14th I remained unwell with no more pain than usual at my periods. I was then taken suddenly with violent pains in the bowels and an increase in the uterine flow. Nothing eased the pain except morphine. I moved from Statesville to Raleigh September 18th and on the 19th my womb was curretted, after this pain ceased but the flow kept up very dark in color. On the tenth day after the curretting I was again taken with violent pains in my stomach and bowels and was very ill with peritonitis. I sat up the 1st of November, continued to improve and was soon out again. I had my periods about every six weeks yet a very slight flow between periods and occasionally pain and nausea. This continued up to the time you saw me in Greensboro."

When first I saw this patient, April 15th, she was very ill with peritonitis. She was at this time living in Greensboro and under the care of Dr. Charles Roberson. Together we continued to treat her until May 17th

when she was removed to the Greensboro Hospital and operated on. On opening the abdomen marked evidences of a former wide-spread peritonitis were seen and the pelvis was choked with a mass of adherent intestines and omentum surrounding a ruptured right tubal pregnancy and the disorganized right ovary and incorporated in the mass was the distal perforated end of the appendix. The clots and detritus looked old and had probably been there since September 11th or nearly eight months. The left tube and ovary were the seat of a destructive inflammation. The damaged organs were removed a careful toilet made and drainage established. The convalescence was very satisfactory and as rapid as the nature of the case permitted.

Case 11.—Tubal pregnancy, rupture at ninth week, vaginal section, recovery.

L. L., colored, aet. 18, married two years, was seen August 15, 1905, with Dr. J. E. Dellinger, of our town. She had never been pregnant and her periods were normal until May. She missed her periods in June and July. July 31st she was suddenly seized with severe pains in her pelvis. When seen by the writer there was a tender mass filling the pelvis and projecting well into the abdomen. The temperature was 102, and the pulse 120. Under the circumstances it was deemed best to make a vaginal incision which was done at the patient's residence. Many blood clots and much detritus were removed and drainage established. This patient improved but not in the ideal way. The temperature while lower continued above normal. After about three weeks a bulging was noticed in the right inguinal region. Under the cocaine locally the mass was incised after which the patient made a rapid and perfect recovery.

Case 12.—Ten weeks tubal pregnancy, unruptured, operation, recovery.

Mrs. N., white, aet. 30, married 7 years, child 6 years old, periods always regular. From her December period she did not get well, but continued to flow scantily and at times profusely. She occasionally passed large lumps of fleshy-looking masses and clots. She had no idea she was pregnant and went on a trip of 65 miles to see her people. While there she became worse and had a physician to see her. On returning home my associate, Dr. J. H. Boyles, saw her but made no vaginal examination. A few days later I saw her and suggested an examination. On February 1st she came to my office and I discovered a mass in the left side of the pelvis which extended in front of the fundus. She was advised to have an immediate operation. February 3rd she entered the Greensboro Hospital. After gently dilating the cervix and assuring myself that the uterus was empty, I opened the abdomen. The left tube contained a pregnancy and was involved in a mass of adhesions with the ovary, uterus, intestines, omentum and bladder. Extending out in front of the fundus and above the bladder apparently a part of the tubal mass was a cystic collection of straw colored fluid. This cyst ruptured after it had been carefully peeled off from the bladder. The adhesions were freed, the tube and ovary tied off en masse and the abdomen closed without drainage. This patient was walking on the tenth day, and went home on the fourteenth day following her operation.

My experience with extra-uterine pregnancy has of course been limited since twelve cases is a small number, but will probably justify a few comments. In thinking over these cases the first thing that attracted my attention was the fact that as one's experience en-

larges the more of these cases does he see. For instance I began practicing medicine in 1881 and to give special attention to surgery about 1887, and up to one year ago I had recognized only seven cases of extra-uterine pregnancy while within the last thirteen months I have encountered seven cases operating on two of them on successive days.

The next item that struck me and that very forcibly, was the fact that a woman may live a long time with a ruptured ectopic pregnancy in her abdomen. My records show the time of operation to vary from two hours to eight months after rupture has occurred. This is a startling fact and offers a grain of comfort showing what wonderful provision nature which is only another name of an all-wise Creator makes for the preservation of human life. But this immunity from immediate death should not mislead us, for these women without exception are desperately ill from the moment of rupture and I believe at least ninety-five per cent. of them ultimately die without operation, indeed many immediate deaths have been recorded due directly to the hemorrhage and shock.

The frequency of extra-uterine pregnancy and the suddenness with which an apparently well woman may be stricken down leads to the observation that any woman in whom we have any cause to suspect the possibility of pregnancy who is without warning overcome by great and inexplicable shock should be examined for the presence of a ruptured ectopic pregnancy. In this way some sudden deaths may be explained or even prevented.

The fourth and most practical conclusion to be drawn from this study is that these cases, early or late, ruptured or unruptured, simple or complicated, are amenable to surgical treatment. True all that are operated

on do not recover but a death following operation is the exception. Think for a moment that it has been only twenty-five years since Tait operated for the first time on a case of tubal pregnancy and even for years thereafter the condition was considered a pathological rarity. How many women must have died from ruptured ectopic-pregnancy in the six thousand years of the world's history.

Touching only one other phase of the subject will I ask your kind consideration. The etiology of this freak pregnancy has been much discussed and little understood. Recently there has been brought forward a theory that perhaps helps to explain both the cause and sequel of ectopic gestation.

The biology that most of us were taught said that the impregnated ovum fell among the uterine follicles which rapidly became hypertrophic and enveloped it in their arms. Peters has disproven this. He describes the earliest known human ovum which was secured from a woman who suicided three days after missing her period. He shows clearly that the ovum is the active agent and that it erodes or destroys the tissues of the muscosa, making for itself a cavity or bed into which it sinks. Prof. Minot of the Harvard Medical School has shown by experiments on embryos in the lower animals that certain of the chorionic cells have the property of destroying tissues and it is believed that the same is true of the human ovum. Minot says the ectodermic cells of the chorion become hypertropic and are known by their large size. These cells he calls the trophoderms and they possess the destructive power described by Peters. The production of a cavity in the uterine muscosa by the digestive properties of the trophoderms and the lodgment of the ovum in the muscosa is styled em-

bryologists "implantation." In other words the ovum is the action agent in the process of implantation and its activity depends largely on the destructive properties of the trophodermic cells of the chorion.

Now for the application. Suppose for any reason the ovum which as is well known becomes impregnated normally in the tube, be detained for ever so short a while, the trophoderms quickly get in their work and in the thin walled tube erode a hole entirely through or cause the ovum to become implanted so close to the surface as to easily cause rupture by blood pressure.

Goffe in discussing this matter cites a case in point. At operation he found abundant blood in the pelvis and only a pin hole opening in the tube filled with a blood clot. An examination of the interior of the tube after removal "gave no indication of the development of a placenta or chorionic cells. The ovum at a very early state must have eroded its way through the tube and the hemorrhages must have been quite frequent if not continuous." Goffe also cites a similar case occurring in the hands of Paul Zweifel.

Some Remarks on Lachrymal Stricture, With Exhibition of New Instrument.

BY J. W. JERVEY, M. D., GREENVILLE, S. C.

Concerning the detailed *modus operandi* of tear drainage from the conjunctival sac, little is vouchsafed in the text books on the eye. The canaliculi, lacrymal sac, and nasal duct of each eye are of course designated as the drainage canal. The actual process of this drain-

age is, however, a mooted point. Capillary attraction, gravitation, and suction from the nasal chambers in the process of breathing, are various theories. The first and last of these are doubtless worthy of serious consideration, as being partial agents. The gravitation theory, I should say, might be summarily dismissed as untenable. An individual standing on his head is not unduly annoyed by epiphora, whatever his other sensation may be.

To my mind it is probable that the contractions of the orbicularis palpebrarum muscle toward its point of origin, as observed in the frequent act of nictitation, or blinking, cause a marked dilatation of the lacrymal sac, while the fibres from Horner's muscle, which twine around the canaliculi, contract concomitantly, and while shortening, at the same time enlarge the lumina of these little passageways. The nasal end of the duct is marked by a slit-like opening in the mucous membrane under the inferior turbinate, and is guarded, in probably all normal cases, by valvular action.

However, regardless of the theories of physiological lacrymal drainage, it is a rather common thing to meet with stricture or even atresia at some point in the canal, from the punctum to the nasal orifice. In the vast majority of cases these strictures are directly due either to catarrhal swelling of the mucous lining in the canal, or to the formation of fibrous connective tissue bands as a result of chronic inflammation. Treatment, especially of the latter class of cases, is usually unsatisfactory. The old surgical motto: "Once a stricture, always a stricture," holds good in the case of the lacrymal canal, as it does referring to the urethral passage.

Dilatation (with, of course, appropriate topical applications) is the principal indication. This is accomplished usually by means of a series of graduated

probes. I regret to say that I believe it to be largely habitual with many eye surgeons to split the canaliculus before introducing a probe. In fact, I have had more than one well-known ophthalmologist inform me that it is practically almost never possible to probe the canal without this preliminary splitting, and I have seen a good many eyes thus summarily dealt with, and with ultimately very unsatisfactory results.

However, it can readily be demonstrated that it is not only possible but extremely easy and simple to pass lacrymal probes up to any reasonable size through the vast majority of canals without recourse to the severance of a single fibre of tissue. The anatomy and physiology of the parts demand that surgery in these cases should scrupulously and consistently avoided unless imperatively necessary. Occasionally the punctum may be safely split for a distance of not more than about two millimeters.

I have here a little instrument which I was enabled to perfect about two years and a half ago, which can almost always be passed (after slight dilatation of the punctum) the entire length of the lacrymal canal with no preliminary surgical intervention whatever. You will readily see the principle upon which it works (exhibits Jervey lachrymal dilator, made by Meyrowitz, N. Y.). It has the conspicuous advantage of exerting most pressure at the point of greatest constriction, and, while dilating the passage, permits antiseptic flushing with a syringe at the same time.

The whole process, including dilatation to any desired extent, can be accomplished entirely painlessly, after suitable preparation with adrenalin and cocaine. And let me say right here that in these cases, no less than in other surgical conditions, a *painless procedure* means a *pleased patient*. It is an altogether worthy

goal to strive for, and very satisfactory when attained.

In these cases, as in others, when cutting is unavoidably necessary, I cut in an authoritatively prescribed fashion; but a million or so years of evolutionary development have perfected structures and functions in the human system which I do not care to attempt improvement upon by surgical solutions of continuity unless insistently compelled to do so.

I do not claim any extravagantly astonishing line of cures with this little dilator. However, I have been enabled to get more satisfactory and lasting results by its use than by any other method; and a number of intelligent patients formerly treated in the old-fashioned way by myself and others have felt and appreciated its usefulness. If properly and carefully used, I believe it will prove itself, and I present it on its merits.

Rheumatism—Acute and Chronic, Rheumatoid Arthritis and Rheumatic Arthritis.

BY J. C. WALTON, M. D., CHASE CITY, VA.
Resident Physician, Mecklenburg Sanitarium.

The experience of the writer is that rheumatic diseases, so called, are very much on the increase in this country, and we are constantly reminded of its ravages by the crippled, deformed and afflicted in the population surrounding us. It behooves us as conscientious physicians to do everything in our power to mitigate and lessen the evil after effects of this disease, for, by judicious care and management, many complications—cardiac and joint—might be prevented, provided, of

course, the physician has charge of the case from the onset. Unfortunately we are still more or less in the dark as to the etiology of rheumatism. The old theory as to the disease being due to an excess of uric acid is controverted, a great many observers now claiming that uric acid excess is the result, not the cause, of the disease. Recent investigators, Poynton, Paine and Meyer, claim that the disease is due to a specific micro-organism, but they have been unable to separate this organism, the micrococcus rheumaticus, from the ordinary streptococcus. Meyer succeeded in obtaining it in a form which produced all the lesions found in the course of the disease, and found the same organism in the sore throat, the inflamed endocardium, the pleura, and in the inflamed joints of persons attacked by this malady; more recently still Poynton has further enforced these views (Hare).

Complications. Statistics show that from 48 to 50 per cent. of acute rheumatism are followed by pericarditis and valvular lesions, and that one-third of all cases of heart disease are due to rheumatism, and while they are rarely lethal in the acute stage, they develop into chronic lesions weeks or years afterwards and are more common in the young than in the old. The disease in the acute stage rarely causes death, the mortality not exceeding one per cent. It is, nevertheless, true that no acute disease causes death so frequently in later years owing to secondary changes in the heart.

Treatment. Rest in bed is most important, even after all symptoms of articular disease have subsided. The patient should remain therein two weeks to avoid undue strain on the heart. Proper attention of course being given to diet, clothing, and the bowels being kept open with mercurials, the drug treatment is a combi-

nation of salicylic and alkaline, followed later by iron. Salicylates made from oil of wintergreen, preferably salicylate of sodium, are to be given in capsules, and washed down with copious draughts of alkaline mineral water. Bi-carbonate of sodium or potassium is given in sufficient doses to keep the urine alkaline, the nurse being instructed to test the urine for acidity at least three times a day, and to see that it is kept alkaline. In threatened cardiac complications, small, frequently repeated fly blisters over the precordium are indicated, and they also help to keep the secretions alkaline. The salicylates should be pushed to physiological effects, and then gradually lessened, as their prolonged use tends to cause anemia, and may cause relapses. In the latter stages, tincture ferri chloride is one of the best remedies to counteract anemia and to hasten convalescence. During the acute stage the joints are kept anointed with equal parts of ichthyol and lanoline, and are wrapped in cotton and bandages.

CHRONIC RHEUMATISM.

A few words about chronic rheumatism, rheumatic arthritis, and rheumatoid arthritis or arthritis deformans, and the differential diagnosis between the two, for this is exceedingly important if we wish to successfully manage these cases, especially rheumatoid arthritis. In rheumatoid arthritis, as compared with rheumatic arthritis, we find more evidences of constitutional derangement, general weakness, pallor, emaciation, anemia, arthralgia, and the various neuroses, and the patient is generally more or less crippled. There may be no rheumatic history in either case, but the rheumatoid arthritis case in most instances shows a strumous taint, while the family history in rheumatic arthritis is

usually a good one, or at most a rheumatic one; occasionally we have the two diseases combined or a mixed case. The diseases are so often confounded that I append the following diagnostic table from Dr. Hugh Lane's most excellent monograph on the subject:

RHEUMATOID ARTHRITIS.

1. Nervous diseases due to debilitating causes.
2. Its last stage is osteo-arthritis.
3. Symptoms constitutional as well as local.
4. Joints most used are the first affected, smaller joints first, running centripetally. Temporo-maxillary joints often affected. Symmetry of joints affected more noticeable.
5. Swelling typical, more or less fusiform and with appearance of effusion.
6. Deformity varying.
7. Anemia early and constant symptom.
8. Many neurotic symptoms especially early in the disease, sweating, headache, tingling, numbness, pigmentation of skin, etc.
9. Very rarely have sub-acute attacks.
10. Heart normal, but rapid in action.
11. Hard, rapid pulse.
12. Reflexes normal or subnormal.
13. Muscular atrophy concurrent with, and often previous to, joint affection and small muscles chiefly.
14. Any age.

RHEUMATIC ARTHRITIS.

1. Following rheumatism always.
2. Has no connection with osteo-arthritis.
3. More confined to joints.
4. Large joints first affected, running centrifugally, and chiefly joints affected that were attacked in previous acute rheumatism. Temporo-maxillary joints never affected. Not so often symmetrical.
5. Swelling as if solid enlargement of normal joint.
6. Greater tendency to fixation of joints in fixed position. Deformity in fingers and fixation in position of extreme flexion.
7. Anemia is present, a later symptom, and never so intense.
8. Wanting; no headache, etc.
9. Greater tendency to sub-acute attacks.
10. Heart often diseased.
11. Pulse varies according to state of heart.
12. Reflexes increased, especially later in the disease.
13. Muscular atrophy subsequent to joints being affected; often large muscles first.
14. Adults and mostly over middle age.

Treatment.—Treatment of rheumatic arthritis must be anti-rheumatic. Rheumatoid arthritis must be treated on tonic and reconstructive lines, liberal diet, cod liver oil, iodides, alkaline mineral waters, baths, hot-air, massage, etc. A brief report of the following case illustrates the difficulty of diagnosing rheumatoid

arthritis, and also the happy results of judicious medication in a disease that is usually regarded by the textbooks and the profession as incurable. There is no more hopeless or pitiable condition than an advanced case of rheumatoid arthritis, and early diagnosis and treatment is vitally important, for it is only in the early stages of the diseases that treatment is of any avail.

Mr. S., aged 32, 5 feet 8 inches, father living (65), health good, mother died at 40, cancer of the breast, sisters and brothers all healthy, all of mother's family died young (around 40 years of age), health good until present attack, in June, 1904; began with pain around knee joint, like a sore tendon, and thought it was a strain, followed by by a hard, pea-like enlargement just above the patella, not painful, and only caused a slight catch in walking; in July and August following noticed a large puff about the knee; physicians diagnosed uric acid, gave hot-air treatment, medicines, etc., without benefit. About this time noticed effusion above knee joint, which soon became swollen, stiff and painful. July, 1905, consulted a noted diagnostician who pronounced it tubercular, and advised operation. Shortly afterwards swelling was incised at upper part of knee joint and six ounces of clear fluid with some blood removed; stayed in bed four weeks; effusion returning, patient was brought to my office for X-ray examination. Examination disclosed inflammatory exudates around joints, with no bone enlargement, so I advised against operation, and suggested possible rheumatic diseases and treatment along these lines. Notwithstanding this advice he was operated upon three days later by an orthopedic surgeon of national reputation, who made two lateral incisions into the joint, thoroughly curetting and removing some granular-looking material which was pronounced tubercular. The limb was strapped and

put up in plaster. Twenty-four hours later the other knee became badly swollen and was aspirated and six ounces of clear fluid removed, strapped with plaster, but had to remove dressing on account of pain, and twenty-four hours after made an incision, removing six ounces of clear fluid; stayed in bed five months, then went around with knee in cast for two weeks, and the disease reappeared in palm of hand and wrist joint and back of hand. This was followed by pain and swelling in all of the second pharyngeal joints of the right hand, commencing first in the little finger, then appearing in the eighth and tenth dorsal vertebrae, the temporo-maxillary and other joints. The patient then went North to consult his surgeon and remained in the hospital three weeks, the cast was removed and a diagnosis of rheumatoid arthritis made, patient was put upon iodide and advised to exercise; returned home very slightly improved, and was admitted to the Mecklenburg Sanitarium, November 4, 1905. The patient was pale, weak, anaemic and very nervous, could scarcely walk, and joints were very painful and partly ankylosed, weight 128 pounds, was placed upon a liberal unrestricted diet and the free use of Mecklenburg lithia water, cod-liver oil, Budwell's emulsion, Barush tonic baths, with hot douches over the joints, static electricity, wave current and sparks over the affected parts, and the patient made a gradual and complete recovery, with the exception of some slight stiffness in the knee joint. The present weight is 149, the most that he has ever weighed, the patient being able to dance at the Christmas german and to hold his own with the rest of the boys.

This case illustrates the difficulties often met with in the early diagnosis of this terrible disease, even by the most expert diagnosticians, and this paper is a plea for

a more thorough study and investigation of this disease, instead of condemning the unfortunate victims to a lifetime of chronic invalidism by a do-nothing policy; for the experience of the writer is that these cases can always be benefited and, if treatment is begun in time, can be cured.

The Use and Abuse of Mineral Waters.

BY BENJ. K. HAYS, M. D., OXFORD, N. C. AND BUFFALO LITHIA SPRINGS, VA.

“My doctor told me to come here and drink all the water that I could,” is a statement frequently made to me by patients at the Buffalo Lithia Springs. No letter of introduction is sent, no written statement of diagnosis or history of the case is presented, and the patient confesses that he was not directed to obtain medical advice during his stay at the springs. Upon inquiry it will be found that he has not been instructed how or when to use the waters,—whether internally or externally, hot or cold, upon an empty or full stomach, how much or how frequently.

He has not been advised as to diet, rest, exercise or habits of life. His idea is to drink the waters—the more the better—that they will cure him, and that matters of hygiene or medical surveillance are of no import.

In “Hare’s System of Therapeutics” the chapter on Mineral Waters is headed, “A Branch of Therapeutics Much Neglected by the Profession at Large.” My observation has not only confirmed this statement, but has led me to believe that there is a prejudice against mineral water on the part of the medical profession in this country. Nor is the cause hard to find. The min-

eral springs are, as a rule, the property of private individuals. The waters are advertised directly to the public, and the claims of the proprietors, backed by abundant testimonials from patients, are oft-times not only extravagant but absurd.

In Europe, on the contrary, the mineral springs usually belong to the government; their properties are made the subject of extensive research by competent observers, and their therapeutic claims rest upon a scientific basis. Every patent attending a European spa is required to place himself under the care of a local physician, nor does a patient think of presenting himself without a letter from his physician at home.

As a consequence, the European spas are better known, and the results obtained more satisfactory than in America. Many American physicians of great learning confess that they have never given an hour's study to the subject of mineral water. In their text-books they advise the use of the waters of Europe in seeming ignorance of the fact that the counterpart of every famous European spring may be found in American soil.

I am convinced that wealthy Americans spend thousands of dollars annually at foreign resorts, which sum might be spent to a better advantage, not only in this country, but frequently within a day's journey of the patient's home.

Nothing is further from my purpose than to press upon this body the claims of any special mineral water, but I do desire to call the attention of the profession to the general subject, in such way that it may not be passed over as a matter of no importance; and I desire further to urge, that before sending patients abroad we investigate the claims of the mineral springs of our own respective states.

Pure or distilled water is of no practical interest to us here. It is difficult to obtain, unpleasant to the taste, and according to Burney Yeo (in his classical work on the Mineral Springs of Europe) is regarded by experimental physiologists, "a remarkable conclusion" says that writer, as poisonous.

There are certain minerals found in all good drinking water which are essential to health. Waters which have an extensive sale because of their purity contain from four to ten grains of mineral substance to the gallon. Drinking melted snow is believed to be one of the causes of goiter, and probably of other diseases. If this is true, it must be the result of a negative rather than a positive harm in the water, which the presence of certain mineral substances would overcome.

On the other hand the presence of objectionable substances in drinking water leads to frequent and numerous forms of disease.

When typhoid fever appears in the community we at once subject the water used by the patient to examination, but repeated attacks of renal colic, intestinal fermentation, and many other troubles are permitted to pass without investigation.

COLD WATER

Cold water taken into the stomach increases arterial tension, reduces the pulse rate and stimulates renal secretion.

The increased flow of urine from drinking small quantities of ice cold water is in excess of the quantity of water taken.

Just how this effect is produced physiologists have not made clear. The opposing theories of Ludwig and Bowman cannot be here discussed, but the fact is of clinical importance. For, since warm water reduces

arterial tension, quickens the heart's action and is eliminated chiefly by the skin, it is clear, that cold, and in warm water, we have two very different therapeutic agents. The former is indicated in dropsical conditions when the heart's action is labored,—a condition in which large quantities of warm or temperate water undoubtedly do harm. On the other hand, when it is desirable—as in certain forms of Bright's disease to reduce arterial tension, or to eliminate uric acid products from the tissues, I am convinced that large quantities of temperate water are of service.

Formerly there was a conflict of opinion as to whether the increased flow of urine, resulting from the inhibition of large quantities of water, does not increase the elimination of solids by the kidneys.

The truth, as finally obtained by Meyer is of practical importance. Upon the wasting products of the body tissue in normal metabolism water exerts no influence; but when the tissues are surcharged with the products of disintergration, water acts as an eliminant. In other words, large quantities of water do not hasten normal metabolism, but do tend to eliminate the agents of auto-genetic intoxication.

Since water is known to possess therapeutic value, the question at once arises, can we not add such minerals as we desire to pure water and thereby obtain the effect of the natural mineral waters? It would seem that we could, yet it has never been successfully done. The universal belief of students of the subject is that in the alembic of nature there are secrets which no chemist has been able to discover.

In natural mineral water the minutest quantity of carbonate of calcium causes marked diuresis: a few grains of sulphate of magnesium or sodium renders it laxative, and less than 1-100 grain of arsenic to the gal-

lon has been known to produce the physiological effect of that drug.

Marion Sims in "The Story of My Life," says that at one time he suffered from a chronic diarrhoea which came near proving fatal, and that his life was saved by a visit to Cooper's Well.

Personally, I can say that during the winter months I suffer from pain in every joint that is exposed to the cold and wet, and that these pains promptly disappear when I take up my summer abode at the Buffalo Lithia Springs.

Let us make abundant allowance for the many adjuncts to health found at popular resorts—rest, change, good food, new faces, pleasant companions, beautiful scenery—all of great value, as is shown by a visit to the mountains, or to the sea shore. But neither mountains nor sea shore relieves chronic skin eruptions nor dissolves renal calculi.

In the use of mineral waters their good effects are seen no less frequently when used in the patient's home—though to a less degree—than at the springs. We are therefore driven to the inevitable conclusion that a judiciously advised visit to a properly selected mineral resort combines the advantages of medicinal treatment with a restful pleasure trip, to which are added an unknown quantity, be it electricity, radium or psychic phenomenon—which is powerful in combat with disease.

CLASSIFICATION.

A satisfactory classification of mineral waters is impossible, since one class often shades into another, making it difficult in many instances to say to which class a given water belongs.

Many classifications have been proposed. It is suffi-

cient for our purpose to divide the mineral springs into Hot and Cold, and subdivide these into Alkaline, Saline and Chalybeate.

The alkaline waters are the ones most frequently recommended in text books on Practice. Their chief ingredients are the salts of lime, combined, as a rule, with magnesium, potassium and other alkalies, most valuable among which are the salts of lithium. These waters usually contain carbonic acid gas, which renders them light and pleasant to the taste.

The saline waters contain, as their chief ingredient, sodium chloride. Sodium and magnesium sulphate are frequently found, and sometimes iodine and bromide.

The chalybeate waters contain iron, usually in the form of a bicarbonate or sulphate. One grain to the gallon will manifest itself in the patient, and is dangerous where iron is contraindicated.

Arsenic, sulphur and the iodides are found in mineral waters, and frequently produce a more desirable effect than can be obtained by prescribing these drugs in any other form.

The therapy of mineral waters is so varied that it can only be touched upon. The chronic dyspeptic, the neurasthenic, the anaemic and the rheumatic are, like the poor, with us always.

The pharmacopoeia and your patience are alike exhausted, yet your patient continues to suffer. A postal card will bring you information about any spa in the country.

The alkaline waters are indicated in uric acid troubles, in rheumatism, dyspepsia, renal calculi and nephritis and cystitis. They are also of service in the acute fevers, and in some way which I am not able to explain I have seen sugar entirely disappear from the urine under their use.

The saline waters are especially indicated in diseases of the alimentary tract, such as torpid liver and flatulence, and when they contain iodine—in syphilis.

The iron waters are tonic, and are serviceable in anaemia, chlorosis, malaria, and in sterility in women. Most persistent cases of eczema have been known to yield promptly to arsenical waters, and the chloride of calcium waters are also said to be of service in skin affections.

Since mineral waters improve digestion, eliminate effete material and add to the general tone of the system, it is not unreasonable to claim that almost any condition may be helped by their judicious use. But they must be used advisedly. Patients suffering from cancer of the stomach, and other abdominal tumors are sometimes sent to mineral springs. It has seemed to me in watching these cases, that while the patient's general health improves that the growth of the neoplasm is also quickened.

In the latter stages of parenchymetous nephritis, when the diseased heart is laboring to do its work, I have seen patients hastened to the grave by crowding their stomachs with water.

In disorders of digestion nothing is more irrational than to add large quantities of cold water to an already overcrowded stomach, and in atheroma the increased arterial tension caused by cold water will surely hasten the fatal apoplectic stroke.

The physician who does not employ mineral water in his practice neglects a most valuable aid in the cure of many diseases; while the patient who believes that the one essential to cure is to drink large quantities of mineral water is sure to do himself incalculable harm.

Neuroses of Ovarian and Tubal Origin and Their Surgical Treatment.

BY J. F. HIGHSMITH, M. D., FAYETTEVILLE, N. C.

The nerve supply of the genital organs has been described by some one as the pelvic brain, giving its connections and calling attention to the gastric, cardiac and other reflexes produced by irritation of these parts. Its existence is shown by the facts which the Gynecologist meets clinically, and by the fact of the removal of the offending organ, or correction of the sexual abnormality removes the neuroses in many cases. Certain rare cases arise in which no palpable pathological anatomic changes are perceptible, and still apparently gynecologic reflex neuroses exist. But these cases are rare in my experience. It is plain that the ovaries and tubes have quite an independent nerve supply, and also stand in intimate relation to definite regions. In other words, diseased ovaries and tubes have a predilection for certain nerves and nerve lesions.

Nervous reflexes occur especially at the periods of functional crisis, puberty, pregnancy, menstruation and the menopause. The close relation between ovarian diseases, breast pains, pain in the iliac region and pressure sensation on top of the head, is often noted by the gynecologist. The origin of neuroses from the ovaries and tubes can sometimes be shown by the possibility of bringing on an attack by pressure over the ovaries when the neurosis has existed for sometime. In other cases the old train of symptoms may be aroused by some peripheral irritation, perhaps of a region not connected with the original local seat in the genitals, or may pro-

ceed after the original local cause has been removed.

For instance, Prof. Hega reports a case in which the patient after operation for pelvic disease was free from the pain for the first nine days, but on the tenth day complained of the return of all her old symptoms. Examination revealed the existence of a stitch abscess, the opening of which was followed by complete subsidence of the irritation. Adhesions of the tubes to other organs may subject them to irritation from either source, the genitals or the organ to which they are adherent. Thus adhesions to the intestines will cause irritation of the intestines, to aggravate the neuroses by causing peristalsis which drags upon the oviduct, or irritation of the oviduct may bring about abnormal peristaltic intestinal symptoms.

B. Robinson cites a case operated on by him and Dr. Lucy White (*American Gynecological and Obstetrical Journal*, 1900, 17, page 201), who had been bedridden for years in consequence of a neurosis caused by a thin peritoneal band extending from the end of the amputated oviduct to the center of a sigmoid flexure. The severing of this thin peritoneal band enabled her to recover and to gain 30 pounds six months after the operation, with apparently perfect health. Of course other peripheral irritation may produce reflex nervous phenomena, and this must be distinguished from those having a genital origin. The irritation arising in the gastro-intestinal tracts from their local proximity is the most likely to lead one into error. Diseases of the rectum, of the colon sigmoid or appendix may bring about a train of local and general symptoms, or may be attributed to the genital system. Disease of organs closely associated with the reproductive organs, as the breast, thyroid and the salivary glands may have a similar effect. When a general neurotic state has been estab-

lished, and especially if psychic manifestations have supervened, the diagnosis must be guarded, for the condition may be referred to the pelvis without actual disease of the tubes and ovaries, thus leading to a wrong conclusion.

Dr. L. G. Handley (*Buffalo Medical Journal*) reports the case of a woman, thirty years old, who had borne three children. For two years she had been treated for nervous prostration and was finally sent to an Institution for the Insane, suffering from severe melancholia with periods of excitement. Removal of large cystic ovaries resulted in complete restoration to mental health. He states the mental condition was dependent upon the pelvic disease in this case beyond any doubt.

W. H. Humston (*Annals of Gynecology*, 12, page 245) reports a case of insanity and one of hystero-epilepsy which were cured by the removal of uterus and appendages. Another case of hysteria was cured, so far as the hysterical attacks were concerned, by removal of the ovaries.

Dr. A. T. Hobbs (*American Journal of Obstetrics*) reports 46 cases of ovarian diseases in insane patients; 28 complicated with other diseases of the pelvic organs in which insanity appeared to be due to ovarian disease; 20 out of 40 had never borne children; 19 recovered after operation, of whom 14 had been insane for less than two years; 10 improved. In the 12 uncomplicated cases, the percentage of the recovery was 58.

R. M. Bucke (*Medical News*, Aug. 11, 1900) found as the result of 200 operations on insane women, 4 died, 196 were restored to bodily health, 83 recovered from their insanity, 45 improved mentally, and in 68 the mental condition remained unimproved. In 63 operations in general surgery, there was only one recovery of mental health. Diseases of the ovaries and tubes seem to

have the most influence upon the mental health, and removal of the ovaries produces a greater proportion of cures than any other operation.

P. Findley (American Journal of Obstetrics, Jan. 1904) in review of 39 uncomplicated cases of cystic degeneration of the ovary found hysteria in three cases, and neurasthenia in all. Headache was complained of in 15 cases. The author concludes that the general nervous phenomena was due to the general discomfort, and with such condition only local discomfort should not call for surgical interferences, or for any consideration of the ovaries. He believes in the resection, or *even* the complete removal, of the uncomplicated cystic ovaries, but *only* where local discomfort, which is the direct result of a lesion, justifies the removal of a part, or whole of the ovary.

Had I time I could give abstracts from many operators, with their results, where the ovaries and tubes had been removed entirely, and where plastic operations had been performed with their respective results.

Suffice it to say I think we are bound to admit that surgery has accomplished more than all other remedies in the restoration of health where the ovaries and tubes were found diseased and the cause of the trouble. Just when surgery should begin and just where it should draw its lines, by this I mean whether to be radical or conservative in the removal of the tubes and ovaries, *is a question*, one which I hope may be freely discussed by those present who have had more experience than I in the management of this class of work. From a practical standpoint in my experience as a gynecologist, I have seen great good follow in almost all, if not all, of my cases of reflex neuroses, shown to be dependent upon ovarian and tubal diseases. I have in most cases been able to diagnose by by-manual examination,

the diseased tubes and ovaries before the incision was made. My choice of route has been through the abdomen. I have preferred this for the simple reason that I felt I was in a better position to do thorough work than if I had gone the vaginal route. As to whether I was radical, that is removed completely the ovaries and tubes if found to be cystic with slight healthy portions, has depended to a great extent on the age of my patient. In many cases I have opened up young girls and found the ovaries cystic masses with very little healthy ovarian tissue. These cases I have done the plastic operation, that is removed the cystic material and left just a little ovarian tissue, whipping it over with catgut, preferring this to a total extirpation, as that would bring the climacteric with all the train of nervous symptoms. Where my patient was between 35 and 45, finding the ovaries badly diseased, have removed them complete, and have had a few cases return extremely nervous, but after six or twelve months they have steadily improved, gaining in weight and strength. The cases which have been referred to me have been those that had gone to the utmost limit of suffering before they would consent to an operation. In looking over my records, I find 200 cases of ovariectomy of special interest occurring in my practice, and so far as I am able to learn from these cases, all have been benefited and most of them cured. Just a few which have been of special interest to me I herewith cite:

January, 1902.—Miss G., age 20; well developed, plethoric, and to all external appearances perfectly healthy, comes of a strong, healthy family, no hereditary diseases, no neuroses. Her mother stated that since her periods occurred at the age of 12, she would have nervous paroxysms. First it was more of a cataleptic state, had gradually grown worse until it looked

to be of an epileptic character. She had gone to that extent that she would be suddenly seized; quicker than an electric current she would be perfectly rigid. Her periods were regular and normal in every respect, but this nervous condition grew worse at that time. She had taken all kinds of nervines, bromides, etc., with no help. I advised an exploratory incision, for diagnostic purposes, thinking that this neuroses might be due to ovarian disease, and on examining the ovaries and tubes I found the former to be thoroughly cystic. I did a double ovariectomy. Her periods of course disappeared. It has been now four years since the operation. She has been relieved, never having one of the spasmodic nervous spells, and at the present is in perfect health in every respect.

Miss B., school girl, 19 years old. While in college began to suffer with a severe pain in her left leg. She became greatly depressed, her eyes gave way, she had to consult an oculist; her health became so impaired she had to be taken away from school, and at times it was feared by her family that she would become demented. When she came to me for an examination (April, 1900), I felt an ovary on the right side which was cystic and enlarged three times its normal size. On opening the abdomen I found a hydrosalpinx of the left tube, and the ovary of the left side in fair condition, but with a spicula of bony-like substance calcareous in character, about one-fourth of an inch in length, and sharp as a needle, piercing it. This patient suffered with most extreme pain in the left leg, and at times was almost unendurable. I am sure that great pain was due to the pricking of the hydrocele from this spicula in the ovary. A plastic operation was done on the left ovary and the hard substance removed. The right ovary was found to be a cystic mass which I removed, also remov-

ing the left hydrosalpinx. The patient made an uninterrupted recovery, all pains disappeared, her eyesight returned, she did away with her glasses, and since has seemed perfectly well.

Miss O., age 20, consulted me (May, 1901), being extremely nervous, eyesight bad, headache, had already consulted an oculist, and was wearing glasses. Upon examination I found that she was wearing a pessary for supposed posterior displacement. Found on examination that she had no displacement. She would have fainting spells. While she was an ambitious young girl, she took no interest in life and kept herself away from her friends. On examination through an incision I found that she had a hydrosalpinx of the right tube an inch in diameter, and about four inches long. This I removed complete. She made an uninterrupted recovery; her eyesight returned, she took hold of life anew and was entirely restored to health.

Mrs. J., married when she was 16 years old, sterile. Had suffered since the first time her periods ever came on. On November, 1902, at the age of 30, she consulted me and in brief gave the following history: Suffered greatly with her throat. Had consulted throat specialists far and near for a choking sensation, which at times became so severe she could hardly breathe. While she liked and desired to attend church worship, she had not been inside of a church for ten years, on account of disturbing the congregation by fainting. By by-manual examination, I found a mass the size of my fist posterior to the uterus. Had much the feeling of a fibroid. She had had great trouble in getting her bowels to move. On opening the abdomen, and lifting the uterus up, I found the signs of an old exudate which had been thrown out, and the right ovary prolapsed deep in Douglas's cul-de-sac, and a broken, down mass the con-

sistency of pitch, as dark as tar, the color of molasses. I took this broken down mass away, and washed out the cavity. The left ovary, while it was not good in shape, she being so anxious for children, I left a portion of it, hoping that it would improve, and at any rate prevent the premature menopause. This patient made a perfect recovery, has been well since, has no throat trouble, no nervous turns, is a teacher in the Sunday schools, and thus bespeaks the success of the operation.

Mrs. B., age 35, mother of one child, 6 years old, was referred to me by her family physician, June, 1903. Anemic, nervous, with every organ in her body in a depressed condition, her assimilation greatly impaired, her heart action greatly increased, she could not ascend stairs or do any manual labor without getting out of breath. Her periods were irregular, but at times profuse. She consented to an operation. The abdomen was opened, ovaries examined and found to be twice their natural size, cystic in character. The double ovariectomy was performed. She made an uninterrupted recovery, and since then has grown stout, gaining 25 pounds in flesh; does her own household work, and is enjoying the best of health.

Would that I had time to enumerate the many other cases which have been of great interest to me. In conclusion, would say that ovarian and tubal diseases give rise to reflex disturbances, showing this in many ways, and while I do not believe in removing healthy ovaries or unnecessarily operating, I do believe that in the greater majority of neurotic conditions dependent upon tubal and ovarian diseases, surgery carefully applied, is the remedy which stands first, and many times patients are allowed to go on and on shunning operative interferences until the last hope, while if the case had been taken in time before the great neurotic centers had

become so thoroughly involved, even greater results could have been promised and given to our patients. Many times I have been astonished in the operating room, could not realize how the patient lived and worked with the conditions that existed. But if the condition is once found, like all other truths in nature, it becomes simple and we wonder why the case had not been relieved before.

The Possibilities of Appendicitis Have No Limitation.

BY JOHN B. DEEVER, M. D.,
Surgeon-in-Chief German Hospital, Phila.

The subject of appendicitis is entirely too large to be discussed in detail in the time allotted to me this afternoon; therefore, I can only attempt to call attention to some of the more important conditions which we should always have in mind when dealing with acute abdominal pain.

There seems to be no limit to the destructive possibilities of an acute attack of appendicitis allowed to run its course, untrammelled by prompt and early surgical interference. In the course of a large and varied experience with this disease, the list of cases numbered by thousands, the writer has met complications involving nearly all the vital organs of the body. It is some of these possibilities that will be brought to your notice for discussion. The foundation upon which the entire structure of the successful treatment of appendicitis is reared is diagnosis. The diagnosis here, as in all intra-abdominal conditions, should be established definitely,

or at least within the bounds of reasonable doubt. Opening the abdomen for diagnostic purposes is contrary to my belief and practice. No one unable to make a reasonable diagnosis is justified in opening the peritoneal cavity. I am quite willing to acknowledge that there are conditions when the symptoms are so complex that an absolute differentiation is impossible; under these conditions I am inclined to think it better not always to operate. I do not claim that errors in diagnosis do not occur, and far too frequently, but the man who makes the fewest mistakes in diagnosis is the safe man—the dangerous one, the man who never makes mistakes.

The eliciting of a careful history in all cases is most essential. Pain, tenderness and rigidity are three symptoms so commonly met with in the early stages of acute appendicitis, that they have been appropriately termed the “cardinal symptoms.” They occur as a rule in sequence, and, in the majority of instances, point definitely to the diagnosis. One might describe a typical attack as follows:

A patient previously well is suddenly attacked by acute abdominal pain, soon followed by nausea or vomiting or both. The pain at first may be general or confined to the epigastrium or umbilical region, but in the course of a few hours is referred to the right iliac fossa, usually after the nausea and vomiting have ceased. Pain may be referred to the left iliac fossa as is frequently the case when the appendix is located in the pelvis. Following the pain there is tenderness and rigidity of the lower right quadrant of the abdomen. With the classical symptoms the diagnosis is comparatively easy, but unfortunately we do not always have so easy a road to travel.

While there are a few acute abdominal conditions

which give rise to the symptoms just described we must never for a moment lose sight of the fact that appendicitis is the most common acute intra-abdominal affection. Among the more common conditions, however, which give rise to symptoms so closely resembling those of acute appendicitis of the fulminating type that a differential diagnosis may be impossible are: Perforated gastric or duodenal ulcer, more particularly duodenal, in which the inflammatory exudate is disposed to travel downwards in the direction of the right iliac fossa; acute pancreatitis; acute inflammation of one or more of the mesenteric glands in the terminal part of the mesentery of the small intestine; perforation of typhoid ulcer in that variety of typhoid fever commonly called walking typhoid; acute cholecystitis in a gall bladder placed abnormally low. There are other conditions such as ruptured extra uterine pregnancy; ovarian cyst twisted upon its pedicle; nephritic colic and so forth, but these conditions are so commonly met with that I will not consider the differentiation between them and the subject under discussion.

In ulcer of the stomach and duodenum there can be elicited a history of gastric disturbances in about eight per cent. of cases only. The overwhelming character of the pain, the absence of vomiting, the limitation of the pain or its reference to the shoulders or intrascapular region. The general abdominal pain is subsequent to the initial local pain; the association of profound shock or collapse; the shallow rapid respiration; the rapid thin pulse; urgent unquenchable thirst; a normal or subnormal temperature; scanty urine, amounting at times to suppression; the early rigidity of the abdominal muscles and subsequent slow distention. The tenderness is not sharply localized, it involves the whole abdominal wall, but is most intense in the upper half.

If these cases are not seen immediately or seen after rupture has occurred and if only a negative history is elicited, the diagnosis is more complicated as the visceral contents, in the case of the stomach, escaping into the lower abdomen occasion general peritoneal irritation soon followed by general peritonitis, and in the case of the duodenum, the initial peritonitis commencing in the right side of the abdomen. In the presence of a diffuse or general peritonitis and in the absence of a clear history, palpation, percussion and auscultation can only be relied upon in making the differentiation, and in many instances these will be of no avail.

In rupture of a duodenal or a pyloric ulcer the diagnosis is more complicated as the visceral contents will run down to the right iliac fossa giving rise to a peritonitis, which from its location and rapidity makes a differential diagnosis well nigh impossible. Here again the history of previous gastric or intestinal disability is of great importance. The rapid onset of collapse which is rare in acute appendicitis, with the location of the primary tenderness and rigidity will serve in many cases to clear up the doubt.

Acute pancreatitis is to be expected when a previously healthy person, or sufferer from occasional attacks of indigestion is suddenly seized with violent pain in the epigastrium followed by vomiting and collapse, and in the course of twenty-four hours by a circumscribed epigastric swelling, tympanic or resistant, with slight rise of temperature. Halsted (1) lays stress on two symptoms of acute pancreatitis. The excessive pain, and cyanosis of the face, and of the abdominal walls.

Acute suppurative inflammation of one or more of the mesenteric glands of the terminal portion of the mesentery of the small intestines may be mistaken for

appendicitis. Even with fairly acute symptoms the enlargement may be due to typhoid fever in its earliest stages. A differential diagnosis is in nearly all cases impossible. The abdominal pain which occasionally precedes the development of acute gonorrhoeal epididymitis may be due to involvement of pelvic glands, as well as to inflammation of the peritoneum at the side of the internal abdominal ring. Both these causes should be borne in mind in doubtful cases.

1. Halsted: Johns Hopkins Hospital Bulletin, 1901, No. 121, 122 and 123. In a case reported by Hamann, a tumor formed by an acute tuberculosis of the iliac lymph glands was mistaken for a peri-appendicular exudate.

Perforation of typhoid ulcer can be very readily mistaken for acute appendicitis. Indeed perforation of the appendix during the course of typhoid is not an unfrequent occurrence and should always be looked for. Two cases which happened recently will serve to illustrate both conditions and will be quoted briefly:

J. aet. 43. Teamster. Previous and family history negative. Eight days before admission to the German Hospital, patient was suddenly seized with sharp pain in the right iliac fossa, which was followed by headache, lassitude, malaise and stiffness of lower extremities, diarrhoea, seven or eight watery stools daily. Two days before admission had an attack of vomiting, no epistaxis. Patient walked into the hospital seeking admission, all the symptoms but pain persisting. Examination at time of admission, face flushed, breath fetid, tongue coated, heart and lungs negative. Abdomen scaphoid, no tenderness, no rose spots. Temperature 100.6.

Two days after admission patient developed general abdominal pain, sharp and cramp-like. Temperature

rose to 105. Pain relieved by passing flatus and temperature fell to 101. The following morning the pain and tenderness became localized in the right iliac region associated with muscular rigidity and moderate distension. No shock. The diagnosis was appendicitis and his abdomen was opened twelve hours after onset of the pain.

Leucocytosis 10,000; Widal negative. The appendix was congested and surrounded by exudate, coils of ileum were found matted together and showed ulcerated areas through the thinned walls. Separation of the coils demonstrated a 2 cm. hole in the ileum through which fecal matter escaped. The patient subsequently made a good recovery having run the full course of typhoid fever.

Miss——, aet. 16. Had been complaining of lassitude and headache for a week or ten days prior to day of examination. Shortly after rising she complained of sudden sharp pain in the right iliac region, she was decidedly tender over McBurney's point and the right rectus was markedly contracted. A slight touch caused her to cry out with pain. Typhoidal ulceration of the appendix was diagnosed. The degree of tenderness lead us to believe that the best course to pursue was the immediate removal of the appendix, to prevent the threatened perforation. Operation demonstrated the wisdom of the procedure. The appendix had a large typhoidal ulcer near its base, which had reached the serous coat of the organ which would have perforated in a very few hours.

The patient ran a prolonged typhoid course and made a complete recovery. The wound healed by first intention and in no way interfered with the necessary treatment of the case.

The differentiation between acute fulminating chole-

cystitis in a gall bladder abnormally low, acute rupture of the gall bladder, or acute appendicitis is practically impossible in the majority of cases. In either event if the patient is seen early in the disease operation should be instituted immediately.

The complications and sequelae of this most disastrous and treacherous disease are well nigh endless, ranging from mild transitory troubles to dissolution.

As a matter of course peritonitis accompanies all cases of appendicitis where the inflammation has involved the serous coat, but short of this it does not assume the dangerous aspect that it does when it becomes circumscribed, diffuse or general, therefore the earlier the operation is done the less danger. In my experience operation in the presence of diffuse peritonitis if done within the first twenty-four to thirty-six hours of the onset of the attack, and due to appendicitis, is followed by recovery. The three varieties of peritonitis, circumscribed, diffuse and general are all of important. The difference between general and diffuse peritonitis is that one involves the whole peritoneum while the diffuse spreads widely in the lower abdomen. I believe that many cases of diffuse peritonitis are considered as general peritonitis.

Peritonitis is not always the destructive fatal process so commonly ascribed to it. It may be and frequently is the beneficial friend to the patient, forming a barrier between life and death's destructive agencies. The location of appendix inflammation; the plugging of perforations in the bowel, the persistent effort of the omentum (the abdominal policeman) to localize infections, all go to prove that inflammations of the peritoneum frequently serve good ends. The prognosis of peritonitis due to appendicitis depends upon the area infected, the character of the infection and whether or

not early operation is instituted. Low grade infection of the entire peritoneum is more likely to result in recovery than a small area in which a high grade infection exists. Frequently a widely diffused peritonitis will be mistaken for a general infection of the whole cavity. Local peritonitis may be limited to the serous coat of the appendix, or involve all the structures in the right iliac fossa; which in the first instance may be likened to a straw fire that can be readily put out, but in the latter a conflagration involving surrounding buildings which will make it difficult and at times impossible to extinguish; any further extrusion I would call a diffuse peritonitis, the term implies a large but localized peritonitis.

There is always a time in every acute attack of appendicitis when the peritonitis is confined to the peritoneum of the appendix and contiguous peritoneal surfaces, and this is the time to remove the organ. The infection may be localized and confined to this area but there is no certainty about it. The greater the area involved, the greater the danger to life either by septic absorption or indirectly by adhesions, subsequent obstruction of the bowels, etc.

Appendicitis resulting in multiple abscess of the liver consequent upon a pylo-phlebitis I have observed a number of times and in every instance with a fatality. The majority of cases I have seen have followed dry gangrene of the appendix. I have met with but few cases of solitary abscess of the liver the result of appendicitis; one recently seen did not develop until two months after recovery from the appendicular inflammation and necessitated resection of the ninth and tenth ribs posteriorly when the collection was readily exposed and drained. Many times I have seen the anterior border of the liver from a portion of the wall of an

appendicular abscess. Sub-phrenic abscess as well as abscesses in other portions of the peritoneal cavity (secondary collections) I have observed many times. A by no means uncommon site for a secondary abscess in cases where the appendix lies behind and to the outer side of the ascending colon or directly behind the colon is the space behind the hepatic flexure of the colon. When a secondary abscess is deeply seated and surrounded by coils of small intestine, its recognition may well nigh be impossible.

Lymphatic and hepatic infections complicating or following appendicitis has only recently been receiving the attention warranted by their frequency and importance. Monroe* reports 39 cases which he divides into the following classes. Undoubted portal infection 15; subphrenic and portal infections 2; probable portal infection 1; abscess of the liver in which the avenue of infection could not be determined 2; subphrenic abscess 5; retroperitoneal lymphangitis 14.

Infection through the portal vein is usually manifested in the right lobe of the liver, although both lobes may be involved. The right lobe however, is always extensively more involved owing to the anatomical arrangement of the branches of the portal vein.

The subphrenic space may become infected in one of four ways: 1st, through the intraperitoneal lymphatics; 2nd, through the retroperitoneal lymphatics; 3rd, by direct invasion of the pus along the posterior cellular space; 4th, through direct invasion within the peritoneal cavity, and indirectly by spreading along the colon to the anterior edge of the liver, and thence to the subphrenic space.

The frequency of these lymphatic infections in appendicitis is explained by the presence of lymphoid tis-

*Munro: *Annals of Surgery*, Vol. XXXVII, No. 5, May, 1905, p. 693.

sue in abundance in the appendix and walls of the cecum. Lymphatic infections are not limited to the liver but may involve the pancreas, spleen, pleural cavities, lungs, mediastinal spaces, etc. It is needless to say that this form of complication of appendicitis is attended by a very high mortality, probably the highest of any form of appendicitis. The liver infections are more dangerous than subphrenic, for the reason that the subphrenic abscess is more manifest and can therefore be diagnosed, opened and drained. Hepatic infections may take place shortly after the inflammation of the appendix sets in or may be delayed for weeks or months after all evidence of the original appendicitis has disappeared. The important diagnostic points to be remembered are the history of an attack of appendicitis, the painful, swollen, tender liver, the transitory and mild jaundice, constitutional symptoms, chills and fever, and rapid emaciation.

Munro in his exhaustive article on the subject says: "In conclusion I would make the following suggestions: First, lymphatic and hepatic infections are more common than we realize. Second, the two infections are frequently associated, and one type may be the source of origin of the other. Third, in certain cases of hepatic abscess, the source of infection, whether through the portal canals or through the lymphatics, cannot be determined either clinically or at operation. Fourth, the type of infection does not depend upon the gravity of the originating appendicitis. Fifth, subphrenic infections must not be isolated in a class by themselves, as they depend upon both lymphatic and hepatic infections, and vice versa. Sixth, hepatic infections are not uniformly distributed even when originating in the portal tract, the left lobe being solely affected at times. Seventh, the prognosis of lymphatic (including the sub-

phrenic) infections is better than that of hepatic, but when the latter are secondary to lymphatic or direct mechanical invasion, the outlook is more favorable than in the true portal invasions. Eighth, the most important clue in making a diagnosis is the recognition of the causative appendicitis, and the elimination of this possible cause is necessary in dealing with obscure hepatic invasions in the presence of plasmodia, the Widal reaction, etc. Ninth, early recognition and removal of the inflamed appendix may abort a secondary infection of the type considered here, but the corollary does not necessarily follow. Tenth, the characteristic signs and symptoms are well established in typical cases, and should form basis for diagnosis in an atypical case."

When the peritonitis at the time of the operation was widespread, was spreading, or even when a localized suppuration only was present, there may develop within the first week or ten days following the operation, one or more secondary or residual abscesses. In the presence of numerous adhesions it will often be beyond the power of the surgeon to tell when he has reached the last encysted collection of pus, and the best he can do is to break up all the adhesions he can find, and drain from every place where adhesions were present. If a localized suppuration alone was present, a residual abscess is liable to form only where the original abscess was not thoroughly evacuated and drained. Dr. Murphy in a recent article states that he now invariably attacks the appendical abscess from its intraperitoneal aspect, protecting the general cavity by gauze, as he fears that through simple evacuation of such an abscess by an incision made through the abdominal wall directly into its cavity, without breaking down its walls, subsequent unsuspected leakage backward into the general peritoneal cavity might occur, leading to the death of

the patient. But while his contentions may be right in theory, it seems to me that they are not always best in practice, since there will always remain patients in whom the abscess is practically pointing through the abdominal wall.

While Dr. Murphy or a surgeon with equal experience may be able to do this successfully, I would advise against the practice in the hands of the ordinary surgeon. I have recently had under my care at the German Hospital a case of suppurative appendicitis where the appendix was removed and drainage instituted by the extraperitoneal route. The wound granulated satisfactorily and the patient was discharged from the hospital, and returned to the dispensary to have the wound dressed. About two weeks subsequently a residual abscess formed for which the patient was again admitted to the hospital. A large fulminating abscess was pointing above the iliac spine. I opened this by direct incision, and evacuated a large quantity of offensive pus. For a couple of days the boy did well; but he then began to vomit, his fever became higher, his bowels were obstinately constipated, and it was evident that there was secondary peritoneal involvement. Recognizing that longer delay meant death, I opened his abdomen in the hypogastric region, turned out his intestines, which I found adherent in innumerable places, and separated all the adhesions. There were, I think, at least seven different abscesses among the intestinal coils, one abscess being beneath the transverse mesocolon in the epigastric region. After thorough irrigation of the bowels and the peritoneal cavity, the intestines were returned to the abdomen, drainage was instituted by means of a glass tube to the pelvis and multiple wicks of gauze throughout the abdomen, and the wound of operation was partly closed. The lad's fever

subsided, his stomach became retentive, and although multiple fecal fistula developed, he is now, I am glad to say, well.

While this case may be taken as an argument in favor of Dr. Murphy's stand, yet this is so rare in extra-peritoneal abscess cases that the ground is not strong enough to take this stand; furthermore, that as this patient recovered it is in keeping with the statement: There is nothing that succeeds like success. The ordinary surgeon adopting Dr. Murphy's method I am sure would have more cases of post-operative peritonitis and a higher mortality than would result from secondary abscess formation requiring so extensive an operation as in the case I report.

Septic emboli loose in the circulation occur not infrequently in acute appendicitis and occasionally in the chronic form as well. The harm they do depends upon the point at which they are arrested. If in the lungs, the patient may die as a result of collapse, or if he survive he will most likely have a septic pneumonia. They give rise to septic endocarditis and pericarditis and to phlebitis. Of the venous involvement may be mentioned inflammation of the right iliac vein, of the right femoral vein, of the left femoral vein, of the mesenteric vein and of the portal vein.

Inflammation of the portal vein, however, with a consequent suppurative hepatitis, is not very infrequently seen. These inflammations are generally infectious, and give rise to infectious embolic processes, which are met with under the forms of hepatic abscess and suppurative pyelephlebitis. Occasionally these conditions co-exist, as in the following case:

A. T., a white male, aged 22 years, a bartender by occupation, had a negative family history. His previous personal history was also negative; he had had only

the ordinary diseases of childhood. During the eighteen months prior to first observation he had had three or four attacks of colic, attended by vomiting. There was no recollection of localized pain. These attacks usually subsided within a few days and he was able to return to his work.

On March 1, 1885, he developed a sore throat, which was accompanied by stiffness of all his extremities and was followed by excruciating griping pains in the epigastrium, which were increased by deep inspiration. He had chills, fever and sweats at irregular intervals; headache and backache; his appetite was fair and his bowels were loose. When seen by his attending physician on March 15, he presented the following symptoms: Temperature 103.4 F.; pulse-rate 96; hectic flush on the cheeks; extreme pain and tenderness and slight tympany in the epigastrium. His tongue was thickly coated, his heart and lungs were normal. His urine contained a trace of albumin and a few granular casts. Blood examination revealed the normal number of erythrocytes and leukocytes, and the normal percentage of haemoglobin. Microscopically a few intracellular organisms, resembling the haematozoa of malaria, were found. During the succeeding night he had a severe chill and profound sweating. The following morning at 5 a. m. his temperature was 98 F. and his pulse-rate 80. A serious diarrhoea then set in. Quinine was administered without relief, and no change in his symptoms was noted until March 19, when, with a morning temperature of 98.6 F., his pulse-rate was 104. His pulse was irregular, there was general abdominal distention, accompanied by marked tenderness and tympany, and a general peritonitis had evidently supervened. The diarrhoea continued, the pulse was rapid and irregular, and the patient grew weaker, and died

April 4th. At necropsy, performed eight hours after death, there was detected a general peritonitis due to a ruptured abscess of the liver. The appendix was perforated and was embedded in a mass of necrotic adhesions. There was purulent inflammation of the portal vein extending into the liver substance. In the upper part of the right lobe of the liver there were numerous embolic abscesses, one of which, situated near the surface, had ruptured beneath the diaphragm.

This case, which came under my observation at necropsy only, is reported: (1) To demonstrate the importance of excluding primary appendicular inflammation in the diagnosis of all intra-abdominal affections, particularly when pain and tenderness are not referred to the right iliac fossa; and (2) to emphasize the value that should be attached to a history of previous attacks of colic with gastric irritation, as indicating early involvement of the appendix, from which, as an infectious focus other organs may subsequently become involved.

In advanced cases of suppurative or late appendicitis parotitis, single or bilateral, is an occasional complication, and often a very disagreeable and sometimes dangerous one. I have seen it occur with suppuration which has evacuated itself spontaneously into the mouth, and again where it was necessary to evacuate by incision. I have also seen the glands melt down under local treatment and become restored to their normal condition.

Intestinal obstruction following acute suppurative appendicitis occurs not infrequently and calls for prompt recognition and immediate operation. In my experience this complication occurs in about three per cent. of cases. Vomiting, pain and constipation coming on from three days to three weeks after the primary operation is suggestive of obstruction. If the symp-

toms persist after lavage, the abdomen should be re-opened and the obstruction relieved. Drugs not only do no good, but are harmful.

Faecal fistula is one of the most annoying sequelae of acute appendicitis, and the only thing to be said in its favor is that the majority of them tend to heal spontaneously; this is not true of the fistulae involving the small bowel. Simple fistulae are much more liable to persist for indefinite periods, frequently remaining open until a silk or other unabsorbable ligature or foreign body is discharged. Faecal fistula high up in the small bowel should be operated early, so as to prevent starvation and the excoriating effect of the bowel contents on the surrounding skin.

Hernia follows in practically all drainage cases. To one familiar with the anatomy of the abdominal wall, and who is skilful in intestinal work, the operation presents no serious difficulties. It is an operation requiring precision and patience, for all the adherent coils of bowel must be separated, the adherent portion of the omentum loosened and removed, and the layers of the abdominal wall dissected out and united by suture each one separately. Asepsis is essential to success.

The operation for the repair of a ventral hernia, however, is a much more serious matter than is operation in the early stages in acute appendicitis while the trouble is still confined to the appendix, the serous coat of the same and the peritoneum in immediate proximity thereto. Compare on the one hand the short delightful course of the elective operation, with its sure and safe return to health and happiness, to the poor unfortunate with an abscess, his abdomen open from groin to loin, protruding from it glass and rubber tubes and endless pieces of gauze, resembling the unfortunate but godly St. Sebastian.

I say, compare the two conditions and then add to it the horrible possibilities of complications such as general or diffuse peritonitis with its fearful mortality and subsequent adhesion; intestinal obstruction; secondary abscess; fecal fistula; pulmonary embolism; phlebitis; pylophlebitis; metastatic abscess of the liver; sub-diaphragmatic abscess, with its tendency to break into a bronchus, discharging its foul and odorous contents through the unfortunate's mouth; abscess of the spleen; rupture into the urinary bladder.

I say, gentlemen, that the conditions I am describing are not myths and visions of a fanciful mind, over zealous for the welfare of its fellow man, but every one of them and more have been the portion of the writer to deal with, and sometimes one cannot help feeling thankful that God in His infinite mercy takes home the sufferer, to a fairer clime where appendicitis and doctors do not exist.

Importance of Surgical Drainage, With Cases Cited.

BY DAVID F. TAYLOR, M. D., WASHINGTON, N. C.

Ex-President North Carolina State Medical Society, Surgeon-in-Chief Washington City Hospital, Washington City, N. C.

Since Chassaignac, who was first to use it, systematic drainage has remained firmly established in surgery. It is true that its scope has been considerably curtailed by modern surgery; still, in the vast field of suppurative affections and in the surgery of certain cavities, drainage remains indispensable. In every fresh wound there is regularly an escape of a bloody, serous fluid, rich in albumen, from the divided tissues, the open cap-

illaries, and lymph spaces, and it corresponds in amount with the size of the wound and the number of cavities and pockets. The formation of these cavities in the wound should be prevented as far as possible by sutures, and by the application of a dressing exerting proper pressure. By means of the latter we try to promote the agglutination of the more deeply lying tissues which have been divided, and thus to diminish the ensuing secretions—a matter of much importance. In small wounds the pressure exerted by the dressings is sufficient to obtain rapid healing, and it is not necessary to use means for conveying off the secretions except where suppuration is already present, and in the case of large fresh wounds. But if suppuration is present we must provide suitable channels for the escape of the secretion in the shape of drainage of some form. Unless we do this the secretions are retained in the wound and prevent primary union. Moreover, opportunity is given for the secretions to decompose and for pus to form and, as a result of the retention of the pus or decomposed secretion of the wound, spreading suppurative inflammation or general infection of the whole system takes place from absorption of the infectious material. The bloody, serous secretion present in the wound, and the blood which has escaped, are highly decomposable, on account of their albuminous character, and consequently it is a matter of great importance to provide careful drainage in large clean wounds, and particularly in those which are already infected.

I am mindful of the fact, at the present time, attempts have been made to do away with drainage in wounds made in aseptic operations, but many good surgeons still rely upon it. As a matter of fact, it is indispensable for the first twenty-four to forty-eight hours in large aseptic wounds, even after they have

been closed by sutures. For example: After disarticulation of hip-joint, or amputation of the breast, accompanied by cleaning out of the axilla, the secretion from the wound and the effused blood can thus escape, and so do not prevent the edges of the wound from quickly uniting by primary intention. If this serum is allowed to collect in the deeper parts and irregularities of the wound, it not only mechanically separate the surfaces and gives rise to tention, a course in itself of the continuance of inflammation and hence of the non-healing of the wound, but it is also liable to undergo decomposition and putrefaction, and form a suitable nidus for the growth of pyogenic micro-organism.

Drainage should always be considered during an operation, when infection has been introduced; when trauma has been done to the peritoneum; when raw and oozing surface must be left; when general peritonitis or acute local peritonitis has been found. Hemorrhage may be a condition demanding drainage.

I am aware that an experienced and dexterous operator can manage very bad adhesions, but there are cases where it is safer to use drainage. I will cite a few instances in which I believe drainage was a life-saving procedure:

Case 1. An old lady, age seventy, was operated on for a very large ovarian tumor, extensively and densely adherent, where the pulse became so rapid and feeble it was impossible and out of the question to take time to stop a general oozing. I filled the lower abdomen and side of pelvis with a large amount of gauze drainage, and in a few days the packing was removed and rapid recovery followed.

Case 2. A young woman, age twenty-seven, suffered many attacks of recurrent appendicitis and was sent to me for operation. The abdominal wall was much thickened; the peritoneum of almost cartilaginous hard-

ness, and the whole parts so unusually vascular, that no time had to be lost in completing the operation—adhesions everywhere. Diligent search revealed a large, hard appendix displaced into the pelvis, attached to the right ovary which had very much enlarged, and upon careful examination found it to be ovarian pregnancy about six weeks. The entire mass was removed, and quantity of gauze placed in lower abdomen and right side of pelvis. It continued to drain very freely for ten days, and recovery was uninterrupted.

Case 3. Young man, age seventeen years, was stricken a severe blow with baseball bat, producing an ugly depressed fracture of the skull, was brought to my hospital in a semi-conscious condition; had convulsions just after receiving blow. I removed several large pieces of the skull that were driven through the dura-mater, necessitating a few sutures in the much-lacerated membrane. There was considerable oozing from the dura-mater, and fearing that it would trickle down between the membrane and the skull, I placed gauze drainage over the raw surface before bringing the flaps together. There was a free discharge for sixty hours of bloody serum. The drainage was removed; union by first intention; recovery complete in three weeks.

Case 4. Young girl, age fourteen, appendectomy performed; in removing same ruptured lower end which was slightly adherent, and just a few drops of pus escaped on my fingers, which I thought was brought safely out of the abdomen, though being in doubt, I put in gauze drainage which was removed in forty-eight hours with best results—recovery complete.

I will not detain you longer. Could cite many cases in which drainage has saved life, and I regard it as a most valuable adjunct to surgery, and will always drain when in doubt.

The Dwarfed and Deformed Mastoid a Sequel to Imperceptible Mastoiditis Complicating Chronic Suppurative Otitis Media.

BY W. E. DRIVER, M. D., NORFOLK, VA.

In looking about for some ideas that might be in common with my hearers, I selected this subject, because it seems to me a possibility of need, and I am certain that I will be more than gratified if any effort on my part will tend to level and straighten the road a bit in the progress of aural surgery, its technique and application. I now have in mind the student, the teacher, the general practitioner, and the aurist or specialist, and as I come to my theme, you will permit me to make known three questions I have already asked and answered to myself; they, of course, will deal only with the salient points.

First.—Is there a condition answering to the title of the paper?

Second.—If so, what is its aetiology, and how is it to be prevented?

Third.—What is to be done with these cases that will go on to otorrhoea and its sequela, in spite of all effort and lastly with those cases that have already developed?

First.—I have found dwarfed and deformed mastoids of two varieties. By far the most common type is that in which the bone, together with the antrum, is dwarfed, and the antrum is apparently displaced upward (while in reality it has never descended to its normal position). The lateral sinus extends very much further forward,

and lies just under the outer table of the mastoid portion of the temporal bone. The part of the bone formerly made up of mastoid cells is very much reduced, and is more or less converted into sclerotic tissue. There is usually a persistent discharge from the ear with exacerbations from time to time. In the second type the tym-



FIG. 1.—Discharging ear off and on since early childhood, sequel to scarlet fever. Marked depression over mastoid antrum. No evidence of previously existing sinus.

panic cavity, aditus, and antrum are more or less converted into one cavity, and apparently there is more space than there would ordinarily be between the two tables of bone; however, by actual measurements, I have seen this only in one case. The disintegrating bone has been absorbed, and the cavities are enlarged at the expense of the mastoid cells, and they are more

or less filled with cholesteatomatus mass. In both types the external table of bone seems to present a normal condition on first examination (see Fig. 1, in contrast



FIG. 2.—The opposite side of the head in Fig. 1, showing no aural defect.

to Fig. 2 and 3, which are normal. Fig. 2 is of the same person as Fig. 1, the other ear in which there is no discharge), but a more careful inspection will reveal a slightly irregular sulcus. However, the change in most patients is so slight that I do not care to emphasize its recognition in any way before the integument and periosteum are removed. In a recent series of these cases, the last five consecutive ones were so characteristic that I could say with considerable assurance what I expected to find before I took off the outer table of bone.

In other words, the outer table, instead of having a decided convexity, there was a sulcus or irregular concavity from above downward, and a lessened convexity

from side to side (see Fig. 1, which shows this condition very much exaggerated, even before the integument has been removed). The suprameatal triangle was not so well defined, but was situated more or less above the external auditory canal, instead of back of it (see Fig. 4, in contrast to Fig. 5, which is normal). In each of these cases the antrum was found dwarfed and displaced upward, in fact, was unusually small. In three



FIG. 3.—Normal development of the mastoid.

of the cases the lateral sinus was exposed during the operation and was directly over, or occupied the usual location of the antrum. In other words, in these three cases, to have reached the normal antrum it would have been necessary to cut through the lateral sinus.

Whenever a suppurative process, whether it be located in the bone or soft tissue, is of considerable duration, a certain amount of reparatory process goes hand



FIG. 4.—Dwarfed mastoid with suprameatal triangle above the external auditory canal. (Photographed from specimens in the Wistar Institute.)

in hand with it, and the wonderful mender, Nature, does not always produce a prototype of the original tissue. In fact, it is but seldom of its likeness. Here the most usual change we have and the one I have found most frequent, is a commutation of the normal cancellous structure into sclerotic or ivory bone. As the process usually begins in childhood, it is not unreasonable to suppose that arrested development is almost *pari-passu* with the onset of the disease (such as we often see in coxalga). This arrested development is not always confined to the mastoid bone, but is sometimes extended to the bones, muscles of the face, and salivary glands of the affected side. A slow inflammatory process is promoted, the nature of which is only made manifest at some later period, usually many years afterwards.

It has fallen to my lot to have the specific care of many cases with landmarks gone and veins of a necrotic process coursing here and there through the hardened bone. It is in the early stages of the arrested development that the large blood vessels located in this vicinity rob the mastoid portion of the temporal bone of its unique architecture, and make it the most formidable part of the human anatomy for the surgeon to



FIG. 5.—Normal mastoid with suprameatal triangle in characteristic position.

explore. The surgeon finds himself very much in the same position as Hannibal's army; there is trouble either to the right or left, and, in fact, danger all around; and, as before stated, the paths of safety are completely overshadowed and occluded by new ele-

ments. To the anterior, or external auditory canal side there is to be protected the aqueductus falloppii containing the seventh nerve. To the posterior, we have



FIG. 6.—Section showing antrum above tympanum and only one table of sclerotic bone covering the lateral sinus, the lateral sinus occupying most of the mastoid area. (Photographed from specimens in the Wistar Institute.)

the lateral sinus. Superiorly the parts are encroached upon by the middle cranial fossa, and internally the horizontal semi-circular canal limits the depth of interference. If either of these structures is injured to any considerable extent, the prognosis is rendered less favorable, and the results may be far from what we would desire.

When operating, we all have visions of facial paralysis, infected lateral sinus, meningeal complications, and disturbed equilibrium. Often the lateral sinus, together with the brain itself, crowd in and claim all for themselves, as it were, but the antrum, and the antrum itself, as before said, may be displaced well out of its normal position.

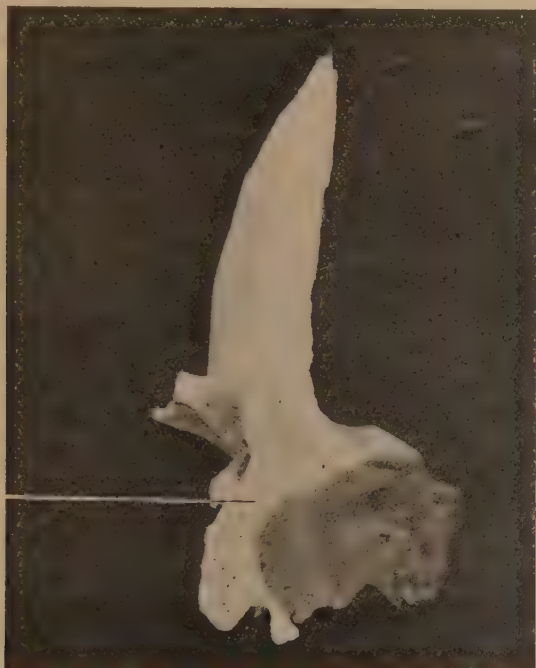


FIG. 7.—Extreme type of dwarfed and sclerotic mastoid. Section showing only one table of bone. (Photographed from specimens in the Wistar Institute.)

In answer to the first of my trinity of questions, I can say dwarfed and deformed mastoids do exist, and cases are far too numerous. They are to be found in nearly every other family. (See Figs. 4, 6, 7 and 8, in contrast to Figs. 5, 9, 10 and 11, which are normal).

Second.—Aetiology and Preventive Treatment. In the wake of the exanthemata, for they play an important role, one finds case after case of discharging ear or

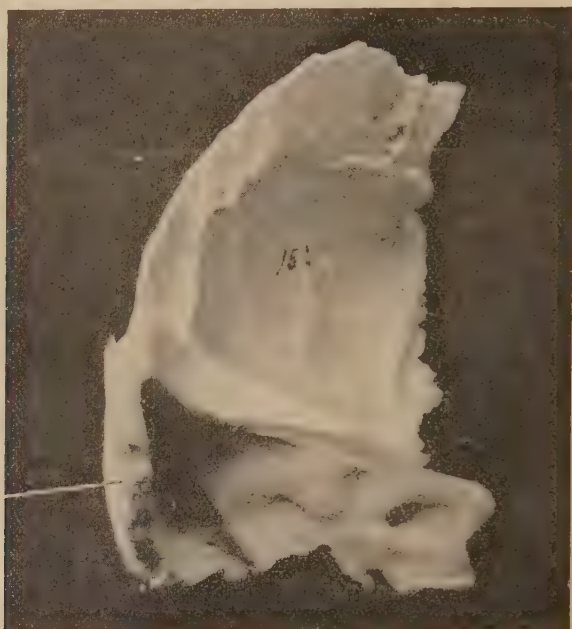


FIG. 8.—Dwarfed mastoid in which the lateral sinus extends very far forward.

ears, and still there are numerous other causes of a more topical nature, such as adenoids, diphtheria, successions of acute rhinitis, subacute rhinitis, atrophic catarrh, and others, from the early manifestations of nutritive disorders, such as gout and rheumatism. Diving in salt water is also responsible for its share of cases. The pus-producing organism has for its normal habitat the surface of the mucous membrane of these parts, and when the opportunity presents itself by a lessened resistance or some unknown factor (and it seems a most favorable nidus for beginning trouble), a suppurative

process is promoted, the early stage of which manifests itself usually in a most characteristic manner; the individual complains of earache. It is here a choice of methods in treatment shapes the destiny of the disease, whether it is to terminate in a speedy resolution or merge into a more chronic suppuration, dating the be-

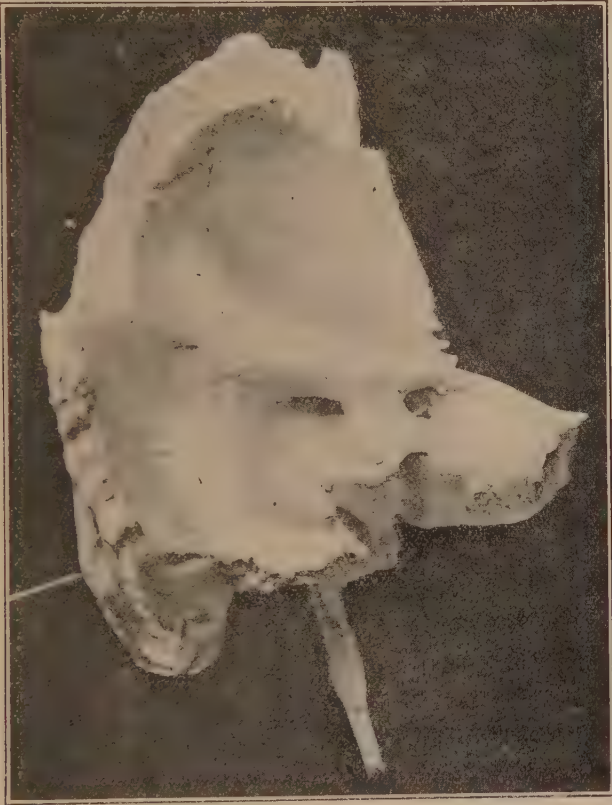


FIG. 9.—Normal temporal bone, mastoid well developed.

ginning of a lifelong source of care and menace to the health and life of the individual.

But before taking up the preventive treatment, which is really the treatment and preventive treatment of

acute suppurative otitis media, I wish to say a word to the student I can now see preparing to take up the study of medicine. Most of the diseases and conditions



FIG. 10.—Type of pneumatic mastoid, normally developed bone.

considered under his domain as a family physician, at least their names, are already familiar to him. Appendicitis has had such widespread publicity that he is quite as familiar with McBurney's point as the abdominal surgeon. This enlightenment has been brought about by better educated and trained practitioners. He now in appendicitis, recognizes the true condition, instead of pronouncing the death sentence of peritonitis,

malignant gastritis, etc. What a great educator the family physician can be!

On the other hand, the membrane tympani, for some cause, Heaven only knows, is thought to be of such vital



FIG. 11.—Type of pneumatic mastoid, normally developed bone.

importance that it is almost a sacrilege to even mention its name, to say nothing of so much as getting a glimpse of it. To the shame of a large number of medical institutions of this country, he comes away with unchanged

mind as to the nature and physiology of this organ—a good family doctor in other conditions, but here each and every pathological process is left to Dame Nature. Specifically the drum is allowed to rupture. Picture

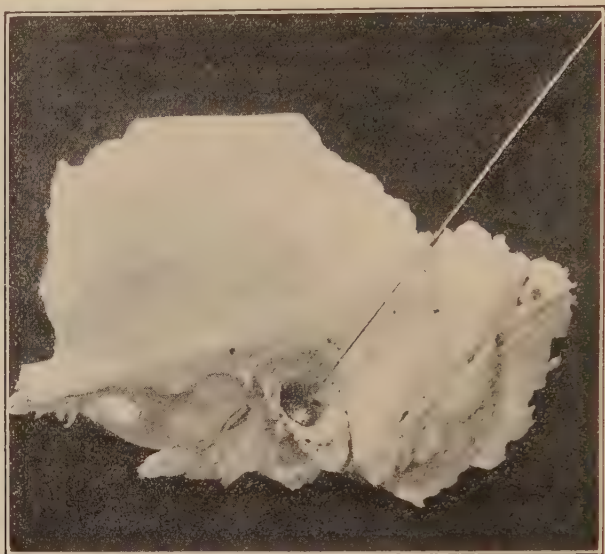


FIG. 12.—Dwarfed mastoid. Dome of jugular fossa perforated. (Drawing from a specimen in Dr. B. Alexander Randall's collection.)

then the contrast between the clean incision of the surgeon's knife with the edges of the wound left in juxtaposition ready to heal even too rapidly, to a round hole from a necrotic process brought about by pressure and infection.

Ask any one with common sense, which has done the most damage, and which will heal with the least sequelae? However, our lot to nature is not always a bad thing, but here, in the great majority of cases, it is most disastrous. Again it seems quite within the pale of possibility that every student who is eventually to become a general practitioner must, and I daresay will,

have sooner or later, adequate clinical instruction, together with dissection, giving him a good permanent mental picture of the anatomy and physiology of the drum, tympanic cavity, and contiguous parts, sufficient at least to enable him to practice and perform the minor surgery which necessarily makes up a part of his daily work. Every graduate so destined should have in his armamentarium adequate appliances to examine the drum intelligently, and to know when and where to incise it. That this procedure may be emphasized, I trust you will bear with me for the repetition which will occur when my remarks become directed strictly to the general practitioner, who is, and has been, in practice for a number of years.

It is painful even to intimate, but is the teacher of aural surgery to become the cow's tail? Is he to teach that suppuration is or may be promoted by clean cut incisions under modern asepsis? God forbid! For, as an established fact, every layman will soon know the true nature, that tissues are thus depleted and phlogistic dispersed.

Preventive Treatment.—In the course of other diseases, and especially those that carry with them such a large percentage of ear involvement, it behooves the medical attendant to have constantly in view the possibility of such a complication, and to make daily examinations. Here it may be of value to freshen your minds with statistics: Downey of Glasgow, in five hundred and one cases of acute suppurative otitis media, found the proportion as follows:

Measles, 131 cases.....	26.1 per cent.
Mumps, 3 cases.....	0.6 per cent.
Scarlet fever, 63 cases.....	12.6 per cent.
Whooping cough, 15 cases.....	3.3 per cent.

Caiger, in 1,008 cases of scarlet fever, found that otitis media occurred in 13 per cent. of them. In 51 cases of scarlet fever seen by Burkhardt, 33 per cent. had ear trouble. Finalayson reports 4,397 cases of scarlet fever, and suppurative otitis media occurred in 10 per cent. of them. Dr. May, of New York, collected 5,613 cases of deaf mutes, of whom 572 owed their condition to otitis media following scarlet fever. Bezold makes the following report of 185 cases showing the result of scarlatinal otitis. In thirty, there was entire destruction of the membrana tympani with loss of one or more bones. In fifty-nine, the perforation comprised half, or more of the membrane. In thirteen, there were smaller perforations. In forty-four, there were granulations or polypi. In fifteen, there was total loss of hearing on one side, and in six of the cases, upon both sides. In seventy-seven of the cases, the hearing distance for low voices, was less than twenty inches. These statistics were collected from Holt's book on Diseases of Children. So far as I know, this is the first mention in literature of the dwarfed and deformed mastoid, a sequel to imperceptible mastoiditis complicating chronic suppurative otitis media.

As before said, besides these general febrile conditions, there are a host of other causes, some of which have already been mentioned, such as adenoids, hypertrophied tonsils, recurrent colds in the head, and diving in salt water, etc. People do not know, or are they are expected to know, when their anatomical make-up is as it should be, and from the very beginning after birth, the family doctor becomes the custodian. He enlightens himself as to whether there is an imperforated anus, or whether there is a pin point or occluded prepuce. So, also, he should know whether there is a free or obstructed respiratory passage. If there are ade-

noids, or enlarged tonsils, or should they come on later, he is the person to know and to advise the parents accordingly. If one of his flock, who has been to the sea-shore diving in salt water, comes to him with pain in the ear, and after examining the drum he finds it red and bulging, he is to incise it, and under no circumstances to wait for it to rupture of its own accord.

I am thus tempted to say something about the very simple process of examining the drum of the ear. Having provided a candle, a head mirror, and an ear speculum, the procedure is as follows with children: The child is placed in a chair, high enough to bring the ear on a level with the surgeon's eye. An attendant holds the candle about six inches back of the head, and usually about four inches to the right. The auricle of the ear is then pulled backwards and downwards, thus straightening the external canal. The speculum is then introduced, and the drum is plainly visible when the light is reflected down the canal. In adults the procedure is the same, save the auricle is pulled backward and upward to straighten the canal. To go back a little, I want to emphasize, when a child has fever, and there is no tangible cause, you will not be doing an unwarrantable act to examine the ears.

I am not much of a believer in our power to abort suppurative processes in the middle ear, even in their very infancy, the pathological process is too internal. We cannot use wet dressings of liquor Burow, or other substances of similar nature and efficacy, to advantage. I have had the stumbling block, but sufficient cases and observation have convinced me that too much stress is laid upon the abortive treatment, the efficacy of which is still doubtful, and notwithstanding all timely care, such as to bed with aconite internally, bundled-up head, hot or cold applications, cleansing sprays, cocaine in-

stilled into the external canal, etc., the suppuration usually progresses to be finally recognized by the discharge from the external ear. This method of treatment may relieve otalgia, but it is a question as to its benefit in a suppurative process, for it is not likely that the patient has been seen in time, even should it be of value when used early. Nearly every one of these cases, when left to itself, will discharge through the drum sooner or later, and this spontaneous rupture of all things should be avoided.

I beseech you to make careful examinations, and with advanced cleansing of the external canal of the ear, be ready to incise the drum when it is indicated, and fear not to incise it freely. Do not make the simple puncture that was taught a few years ago, but start your incision at the very bottom of the inferior posterior quadrant, making a curvilinear incision as high up as you can until the knife impinges upon the bone, and then slightly down the canal, and you will strike a death blow to the progress of the disease. Yea, you had better incise the drum a week too soon than a day too late, for when sufficient pressure has been engendered in the tympanic cavity to force a spontaneous rupture, the energy has been in all directions, and it is not an accident for pus or infected material to be forced through the aditus into the mastoid antrum, in this way making sure of beginning trouble, even should the aditus and antrum escape the disease of the tympanic cavity extending by by continuity. Thus, in this way, is dated the very beginning of a mastoiditis, which may or may not run an impreceptible course. If it be of the imperceptible type, the only recognizable evidence is the persistent discharge from the ear. Other pathognomonic symptoms do not exist.

What does freely opening the drum do? First it does no harm even if the procedure is exploratory, and no pus is found. Under aseptic conditions the wound heals in twenty-four hours or less. If there be pus, serosanguineous fluid or putrid gas, they are allowed to escape. Absorption from the tympanic cavity is put an end to, and from the general depletion of the tissues the Eustachian tube soon rights itself and becomes pervious, making the drainage still better and almost complete.

Now is the time for proper syringing with suitable antiseptics, such as a mild solution of bichloride of mercury, say one to eight or ten thousand, at short intervals, probably not oftener than every two hours, and during the interim a piece of sterilized gauze is tucked well down to the drum to act as a wick for drainage. with this method my experience is that a speedy resolution is the rule. The ear gets well almost by crisis and stays well.

Do you remember that the old idea as to the function of the drum, the part it plays in hearing, that it must not in any way be interfered with for fear of deafness, is as much relegated to the past as the past itself, and that there is not the slightest harm in making a clean incision in the drum adequate for all drainage. Depletion, whether by natural or artificial leach, is by far the most potent method, if there be any reliable one of aborting the condition. Spontaneous rupture bringing relief to the patient, comfort to the family and family doctor, is not as ideal as it seems, when we come to analyze and know its shortcomings, to see how incomplete nature is in depriving the disease of its foothold. In the first place, the drum ruptures at the point of least resistance; this is nearly always high up and very often in Schrapnell's membrane. That part of the drum

membrane below the opening is left to act as a dam retaining in the tympanic cavity, pus, the discharge through the external canal being merely the overflow.

The hole is rendered in the drum by a certain portion of the drum membrane becoming necrotic, finally sloughing through. The drum at the same time is infected. This, however, is not so serious a condition as the shape of the opening, a round hole that does not allow the edges to become in juxtaposition for ideal healing. We, therefore, have, when union takes place, much scar tissue, with puckering, and an irregularly-shaped drum, even if the case terminates most favorably. The usual course, however, is for most of the drum to slough away, leaving a permanent opening for air, dust, and organisms, to enter the tympanic cavity. The retained pus, after a sufficient time, causes the mucus membrane lining the tympanic cavity, and especially the floor, to become deeply diseased, so much so, that occasionally infection occurs through the dome of the jugular fossa infecting the vein direct. (See Fig. 12.)

Some contend that infection through the dome is most frequent in acute cases, that is, the infecting organisms, lymph spaces, etc., have much to do with it. Of this point I am not quite certain, since the bones I have seen with perforations through the dome have all been dwarfed and deformed, showing that there had existed for a long time a pathological process. Clinically, the only cases I have seen and recognized, were in children with acute suppurative otitis media, following one of the exanthemata. However, this would not have much to do with the subject in hand, were it not for the fact that infection extends upwards through the aditus into the antrum, setting up in the majority of cases, an inflammatory process, the fountain-head for pus, the very

bourne of a continued discharge, that persists off and on through life.

Of course, acute mastoiditis, from a similar cause, is much more readily recognized, and usually has the proper treatment, but the imperceptible mastoiditis is allowed to run an indefinite course, until some more vital part has been involved, thrusting our patient into the perils of a speedy termination.

Third.—What percentage of cases will go on to the chronic condition, under the best treatment, I am not prepared to say. However, I believe the percentage will be comparatively small, and this leaves for consideration: What shall be done with them, and the cases that have already developed? I am thoroughly convinced that what is known as the radical operation, when skillfully done and under latter day methods, is one of the greatest boons to modern surgery. The patient is not only relieved of the daily annoyance, but also of the immense danger of extension to deeper parts, and often fatal complications.

Macewen, in his admirable book on Pathogenic Diseases of the Brain and Spinal Cord, gives the proportion of brain involvement from ottic origin as 95 per cent. However, we must not forget the position of the aural surgeon. His advice is here to a patient otherwise in good health and usually able to attend to business. The patient has only a persistent discharge from the ear with occasional pain, and at times cachexia that dates from infancy or childhood. This individual is to be told of the danger of anaesthesia, of the vital parts that lie about the field to be explored, and of the nature of the disease, and is allowed to choose for himself. With lessened danger from anaesthesia by improved methods of experts, with perfected technique, etc., I

•

strongly commend the operation. Panse's modification of the old Stacky-Schwartz operation is the one I usually do.

I am much indebted to Dr. H. O. Reik, of the Johns Hopkins University, and Dr. B. Alexander Randall, of University of Pennsylvania, and Dr. Greenman, of the Wistar Institute, for their kindness in assisting me in procuring a sufficient number of temporal bones to substantiate without question the existence of dwarfed and deformed mastoids.

LIST OF MEMBERS.

HONORARY FELLOWS.

	YEAR ELECTED.
W. H. H. COBB.....	Goldsboro, N. C.—1900
C. W. KOLLOCK.....	Charleston, S. C.—1901
J. N. UPSHUR.....	Richmond, Va.—1902
J. C. HEMMETER.....	Baltimore, Md.—1901
J. A. BURROUGHS.....	Asheville, N. C.—1903
DAVIS FURMAN.....	Greenville, S. C.—1904
W. L. ROBINSON.....	Danville, Va.—1905
HUBERT A. ROYSTER.....	Raleigh, N. C.—1906

NORTH CAROLINA.

NAME.	ADDRESS.	NAME.	ADDRESS.
Anderson, Albert.....	Wilson	Fox, Thos. I.....	Franklinsville
Ashby, T. B.....	Mt. Airy	Gibbon, R. L.....	Charlotte
Averitt, Kirby G....	Cedar Creek	Glenn, E. B.....	Asheville
Bahnson, H. T....	Winston-Salem	Graham, Jos.	Durham
Baker, J. M.....	Tarboro	Hays, Benj. K.....	Oxford
Banner, Chas. W....	Greensboro	Hilliard, W. D.....	Asheville
Battle, J. T. J.....	Greensboro	Hughes, Geo. R....	Greensboro
Battle, S. Westray....	Asheville	Irvin, Jno. R.....	Charlotte
Boaz, Thos. A.....	Stoneville	Jordan, C. S.....	Asheville
Bolton, Mahlon....	Rich Square	Julian, Chas. A....	Thomasville
Brawley, Robt. V....	Salisbury	Kirk, Wm. R....	Hendersonville
Brown, J. S.....	Hendersonville	Kirkpatrick, L. R....	Maxton
Burroughs, J. A.....	Asheville	Lane, Wm. K.....	Goldsboro
Burrus, John T.....	High Point	Lockett, E. A....	Winston-Salem
Blair, John M.....	Monroe	Long, J. W.....	Greensboro
Cheesborough, T. P....	Asheville	Mac Nider, Wm. D. B.,	
Clemenger, F. J.....	Asheville		Chapel Hill
Cobb, W. H. H.....	Goldsboro	Malloy, S. A.....	Yanceyville
Crowell, A. J.....	Charlotte	Marsh, J. H.....	Fayetteville
Crowell, S. M.....	Charlotte	Meriwether, F. T....	Asheville
Davidson, W. S.....	Charlotte	Monk, H. L.....	Spencer
Dickinson, E. T.....	Wilson	Monroe, W. A.....	Sanford
Dodson, H. H.....	Greensboro	Munroe, J. P.....	Davidson
Dunn, W. L.....	Asheville	McAnally, W. J....	High Point
Faucette, Thos. S....	Burlington	McGehee, J. W.....	Reidsville
Flippen, J. M.....	Salisbury	McKenzie, W. W.....	Salisbury

NORTH CAROLINA—Continued.

NAME.	ADDRESS.	NAME.	ADDRESS.
McMullan, Thos. S....	Hertford	Stokes, J. E.....	Salisbury
O'Kelly, J. M.....	Durham	Swann, J. F.....	Semora
Paquin, P.....	Asheville	Sweaney, John.....	Spray
Patrick, J. E.....	Snow Hill	Tayloe, D. T.....	Washington
Ramseur, G. A.....	China Grove	Taylor, Isaac M....	Morganton
Register, E. C.....	Charlotte	Templeton, James M....	Cary
Reitzel, James R....	High Point	Tucker, H. McKee....	Raleigh
Reynolds, C. V.....	Asheville	Turner, Jos. P.....	Greensboro
Reynolds, J. H.....	Asheville	Von Ruck, Silvio.....	Asheville
Roberson, Chas.....	Greensboro	Wakefield, W. H.....	Charlotte
Royster, H. A.....	Raleigh	Walker, Jessie O.....	Concord
Sawyer, James.....	Asheville	Way, J. Howell.....	Waynesville
Schaub, O. P.....	Roxboro	West, R. M.....	Salisbury
Sevier, Joseph T....	Asheville	Whisnant, A. M.....	Charlotte
Sikes, G. T.....	Grissom	Whitehead, John.....	Salisbury
Spencer, W. O.....	Yanceyville	Williams, J. A.....	Reidsville
Stanton, D. A.....	High Point	Woodley, W. T.....	Charlotte

SOUTH CAROLINA.

NAME.	ADDRESS.	NAME.	ADDRESS.
Allen, Joseph.....	Enroe	Edwards, R. L.....	Darlington
Allen, J. H.....	Spartanburg	Egleston, Wm.....	Hartsville
Allen, B. Lee.....	Gaffney	Epting, R. B.....	Greenwood
Austell, C. W.....	Union	Evans, James.....	Florence
Baker, S. C.....	Sumter	Furman, Davis.....	Greenville
Baker, A. E.....	Charleston	Gambrell, C. G.....	Abbeville
Beckham, R. S.....	Kershaw	Gibbes, R. W.....	Columbia
Black, W. C.....	Greenville	Gonig, Jos. G.....	Union
Blake, L. J.....	Spartanburg	Guery, LeGrand.....	Columbia
Bowen, W. C.....	Belton	Hamer, H. T.....	Jonesville
Brailsford, A. M.....	Mullins	Hamilton, J. H.....	Union
Butler, F. P. W.....	Edgefield	Harris, J. C.....	Anderson
Carpenter, E. W....	Greenville	Hayne, James A.....	Greenville
Carroll, F. J.....	Summerville	Hughes, R. E.....	Laurens
Cathcart, R. S.....	Charleston	Jackson, O. L. P....	Columbia
Chambers, M. W....	Jonesville	Jervey, J. W.....	Greenville
Croft, T. G.....	Aiken	Johnston, A. R.....	Reevesville
Dorsey, R. M.....	Spartanburg	Johnston, J. G.....	Chester
Downey, J. H....	Gainesville, Ga.	Kendall, H. D.....	Columbia
Earle, C. B.....	Greenville	Kinloch, E. J.....	Charleston

SOUTH CAROLINA—Continued.

NAME.	ADDRESS.	NAME.	ADDRESS.
Kirkpatrick, W. E.....	Pacolet	Schayer, Isadore.....	Laurens
Knowlton, A. B.....	Columbia	Simons, Manning....	Charleston
Kollock, C. W.....	Charleston	Smith, A. C.....	Union
Lander, Frank.....	Williamston	Southard, W. O.....	Jonesville
Lawson, J. M.....	Union	Teague, J. H.....	Laurens
Leonard, O. W.....	Spartanburg	Timmermann, W. P.	Timmerman
Lucas, B. S.....	Hartsville	Timmermann, R. H.....	Judson
Lowman, W. R.....	Orangeburg	Torrence, Crown.....	Union
Maddox, Theodore.....	Union	Tompkins, J. G.....	Edgefield
Mauldin, Leland O...	Greenville	Whaley, E. M.....	Columbia
Massie, S. B., Jr.....	Rock Hill	Whaley, T. P.....	Charleston
Montgomery, D. H.....	Union	Wilson, G. DeFoix.	Spartanburg
Neel, G. P.....	Greenwood	Williams, J. F.....	Roebuck
Parker, E. F.....	Charleston	Wingard, J. J.....	Lexington
Potts, F. L.....	Spartanburg	Witherspoon, E. J....	Lancaster
Powell, J. F.....	Manning	Woodruff, J. C.....	Charleston
Pryor, S. W.....	Chester	Wyman, J. F.....	Aiken
Ransom, R. P.....	Williamston	Wyman, H. H.....	Aiken
Rees, C. M.....	Charleston		

VIRGINIA.

NAME.	ADDRESS.	NAME.	ADDRESS.
Anderson, J. A.....	Danville	Dillard, J. W.....	Lynchburg
Anderson, W. E.....	Farmville	Drake, G. W.....	Hollins
Barringer, P. B...	University Va.	Drewry, W. F.....	Petersburg
Baughman, Greer.....	Richmond	Drewry, F. D.....	Virgilina
Bell, William.....	Winchester	Driver, W. E.....	Norfolk
Belt, H. S.....	South Boston	Dunn, John.....	Richmond
Bosher, L. C.....	Richmond	Edwards, Landon B..	Richmond
Bryan, R. C.....	Richmond	Edwards, Chas. M....	Richmond
Buckmaster, A. H.....	University Va.	Frazer, L. G.....	Norfolk
Buckner, Leigh.....	Roanoke	Gale, Jos. A.....	Roanoke
Cannaday, John E..	Paint Creek	Garcin, R. D.....	Richmond
Carter, C. Thos.....	Danville	Gildersleeve, J. R....	Tazewell
Causey, P. P.....	Virgilina	Gills, Wm. J.....	Farmville
Chinn, G. E.....	Norfolk	Goode, J. G.....	Cheriton
Cocke, G. W.....	Danville	Gordon, W. S.....	Richmond
Corss, J. K.....	Newport News	Graham, J. T.....	Wytheville
Davidson, J. P.....	Richmond	Gray, Alfred L.....	Richmond
		Harnsberger, Stephen...	Catlett

VIRGINIA—Continued.

NAME.	ADDRESS.	NAME.	ADDRESS.
Harrison, Virginius...	Richmond	Preston, R. J.....	Marion
Henson, J. W.....	Richmond	Priddy, A. S..	Bristol, Va.-Tenn.
Hodges, J. A.....	Richmond	Pole, Henry.....	Hot Springs
Horsley, J. Shelton...	Richmond	Randolph, R. C.....	Boyce
Hughes, S. E.....	Danville	Randolph, W. M.	Charlottesville
Hunter, James, W., Jr..	Norfolk	Robertson, L. A.....	Danville
Irvin, J. S.....	Danville	Robertson, Wm. W..	Fall Creek
James, R. Bruce.....	Danville	Robins, C. R.....	Richmond
Johnston Geo. Ben...	Richmond	Robinson, J. M.....	Danville
Lawford, F.....	Berkeley	Robinson, S. M.....	Woodlawn
LaRoque, G. Paul...	Richmond	Robinson, W. L.....	Danville
Leigh, Southgate.....	Norfolk	Spaulding, B. D.....	Richmond
Leigh, H. G.....	Petersburg	Stover, Geo. A....	South Boston
Levy, H. H.....	Richmond	Taliaferro, V. H.....	Richmond
Levy, E. C.....	Richmond	Taylor, H. M.....	Richmond
Maphis, Samuel W..	Warrenton	Tompkins, J. E..	Fredericksburg
Martin, R. W.....	Lynchburg	Trice, Dabney....	Charlottesville
Martin, R. W., Jr....	Lynchburg	Trout, H. H.....	Staunton
Massie, J. P.....	Richmond	Upshur, J. N.....	Richmond
Michaux, Jacob.....	Richmond	Wallace, A. McG....	Gate City
McGuire, Stuart.....	Richmond	Walton Jno. C.....	Chase City
McGuire, Edward....	Richmond	Wellford, J. S.....	Richmond
McLean, H. S.....	Richmond	White, J. A.....	Richmond
Nelson, H. T....	Charlottesville	Williams, R. F.....	Richmond
Newman, W. A.....	Amherst	Williams, E. G.....	Richmond
O'Hara, Robt. G...	Bedford City	Winfree, J. M.....	Richmond
Owen, James A.....	Turbeville	Woodard, J. F.....	Norfolk
Parrish, W. P.....	Chatham	Wysor, J. C.....	Clifton Forge
Pedigo, L. G.....	Leatherwood		

CONSTITUTION.

ARTICLE I.

TITLE OF THE ASSOCIATION.

The name and title of this Association shall be "The Tri-State Medical Association of the Carolinas and Virginia."

ARTICLE II.

OBJECTS OF THE ASSOCIATION.

The objects of this Association shall be for the advancement of medical science, for the elevation of the profession and for the promotion of all means for the relief of suffering humanity.

ARTICLE III.

MEMBERSHIP.

Section 1. This Association shall consist of active and honorary members.

Sec. 2. Any physician of the three States (North Carolina, South Carolina and Virginia) in good and regular standing and a member of his State Society shall be eligible for membership.

Sec. 3. Application for membership must be presented in writing, giving name in full, address, college of graduation and endorsed by one or more members of this Association. Honorary members shall be nominated to this Society by the Executive Council and elected by ballot. Application for membership shall be referred to the Executive Council, who shall report as early as possible. Candidates shall be voted for by the Association, who, upon receiving a two-thirds vote of the members present, shall be declared elected.

Sec. 4. Honorary members shall not exceed twenty American and ten foreign physicians, who shall be elected according to section 3 of this Article (III).

ARTICLE IV.

TIME AND PLACE OF MEETING.

This Association shall hold an annual meeting in one of the respective States alternately at such a time and place as the Asso-

ciation or the Executive Council may determine. It shall continue in session three days, unless otherwise ordered by the Association.

The first day of each session shall be set aside as a special order for some special subject announced at the previous meeting by the Executive Council.

ARTICLE V.

OFFICERS.

Section 1. The officers of this Association shall consist of a President, three Vice-Presidents—one from each State—a Secretary, a Treasurer, and nine Executive Councillors—three from each State.

Sec. 2. The nomination of all officers shall be made by the Executive Council in open session at a business meeting, but this shall not preclude the nomination of any officer at this time by any member of the Society, and the election shall be by ballot.

The officers shall enter upon their duties immediately before the adjournment of the meeting at which they are elected and shall hold office for one year. Any vacancy occurring during the recess shall be filled by the Executive Council.

ARTICLE VI.

AMENDMENTS.

This Constitution shall take effect immediately from the time of its adoption, and shall not be amended except by a written resolution, which shall lie over one year and receive a vote of two-thirds of the members present.

BY-LAWS.

DUTIES OF THE PRESIDENT.

1. The President shall preside at the meeting and perform the usual duties of this office; he shall make an annual address, and shall not be eligible for re-election (or a second term). He shall be *ex officio* Chairman of the Executive Council.

DUTIES OF THE VICE-PRESIDENTS.

2. The Vice-Presidents shall perform the duties of the President during his absence or when so requested by him. They shall not be eligible for re-election for any two terms in succession.

DUTIES OF THE SECRETARY.

3. The Secretary shall attend and keep a record of all meetings of the Association and Executive Council, he being *ex officio* member of the Executive Council, and entitled to vote. He shall conduct the correspondence of the Association and shall be the custodian of all papers, seals, books and records of the Association. He shall collect all money due from the members or other sources and shall pay the same over to the Treasurer, taking his receipt therefor. He shall keep the accounts of the Association with its members and shall also keep a register of the members with the dates of their admission and places of their residence, and shall perform all such other duties as pertain to his office. He shall receive such compensation for his services annually as the Association or Executive Council may agree upon.

DUTIES OF THE TREASURER.

4. The Treasurer shall receive all monies belonging to the Association from the Secretary and shall disburse as directed by the Association, preserving vouchers for the same, and shall render an account annually at each meeting, when an auditing committee shall be appointed to examine his accounts and vouchers. He shall receive such compensation annually as the Association may agree upon (or be allowed five or ten per cent. on the amount received and disbursed by him).

DUTIES OF THE EXECUTIVE COUNCIL.

5. The Executive Council shall consist of nine members—three from each State—and of these elected at the primary meeting three shall serve three years, three two years and three one year, this being determined by the number of votes received (but always the members of the Executive Council shall consist of three from each State). So subsequently three members of the Council—one from each State—shall be elected annually to serve three years. The President and the Secretary shall be members *ex officio* of this Council. The duties of the Council shall be to investigate applications for membership and report to the Association those that are considered worthy. It shall have the management of the affairs of the Association during the interim as well as during the meeting. All motions and resolutions before the Association shall be referred to the Executive Council without debate and it shall report as soon as possible. It shall take cognizance of all questions of an ethical,

judicial or personal nature and upon these, decisions shall be final: *Provided*, an appeal may be taken from such decision of the Executive Council by a two-thirds vote of the Association.

ORDER OF BUSINESS.

6. Calling meeting to order.
Divine invocation.
Reading Minutes.
Appointment of committees.
Report of Secretary.
Report of Treasurer.
Report of committees.
Miscellaneous business.
Reading of papers.
Election of officers.

HOW COMMITTEES ARE APPOINTED.

7. The President shall appoint the following committees: Arrangement, Auditing and Necrological.

FINANCE.

8. Each member (on admission) shall pay an initiation fee of \$2.00 in advance.

Each member shall pay, in advance, annually, the sum of \$3.00. Any member neglecting to pay his annual dues for one year forfeits his membership, upon a vote of the Executive Council.

PAPERS WHEN TITLES FURNISHED.

9. The titles of all papers to be read at any meeting shall be furnished the Secretary not later than one week before the annual meeting.

No paper shall be read before this Association that has previously been read or published. Not more than twenty minutes shall be occupied in reading any paper before this Association, except by a vote of the Association.

In the discussion of papers, resolutions or questions no member shall speak longer than five minutes or more than twice, except on special permission by a vote of the Association.

Any paper read before this Association can be published by its

author: *Provided*, due credit is given that it was read before the Tri-State Medical Association of the Carolinas and Virginia.

PARLIAMENTARY RULES.

10. Roberts' Rules of Order shall be accepted as a parliamentary guide in the deliberations of this Association.

J. G. TOMPKINS,
GEO. W. LONG,
P. B. BARRINGER,
Committee.

INDEX

	PAGE
Abscess, Report Case of Metastatic, Dr. Stephen Harnsberger.....	91, 99, 256
Address, The President's Annual, Dr. Hubert A. Royster.....	19, 20, 55, 103
Address of Welcome, Mr. H. E. Ravenel.....	10-13
Address of Welcome, Response to, Dr. Carl V. Reynolds.....	13-15
Allen, Dr. J. H.....	15, 55
Anderson, Dr. W. E.....	54
Appendicitis, Differential Diagnosis of, Dr. F. L. Potts.....	24, 118
Appendicitis, Discussions on Dr. Potts' Paper.....	24-33
Appendicitis, The Possibilities of, Paper on, by Dr. John B. Deaver.....	75, 316
Appendicitis, Discussion by Dr. Joseph Price.....	75-79
Arrears for Dues, Secretary to Notify All Members in.....	57
Arthritis, Paper on, by Dr. J. C. Walton.....	295
Austell, Dr. C. W.....	56
Battle, Dr. T. J. T.....	39
Blake, Dr. L. J.....	56
Briggs, Dr. H. H.....	72-73
Brown, Dr. J. Stevens.....	56
Bryan, Dr. Robt. C.....	49, 54
Bryan, Dr. Robt. C., Paper on Cases of Genito-Urinary Surgery.....	49
Caesarean Section, Successful Case of, Reported by Dr. C. B. Earle.....	173
Caecum and Ascending Colon, Tumor of, Dr. A. B. Knowlton.....	35, 168
Cannaday, Dr. J. E.....	56, 157
Cannaday, Dr. J. E., Iodine in Surgery.....	157
Clemenger, Dr. F. J.....	55
Clemenger, Dr. F. J.....	176
Carpenter, Dr. E. W.....	56, 81, 83, 182
Carpenter, Dr. E. W., The Modern Mastoid Operation.....	81, 182
Chambers, Dr. J. E.....	56
Cobb, Dr. W. H. H.....	47
Converse College, Invitation to Association.....	54
Committees of Association, 1907 Session.....	6
Crowell, Dr. A. J.....	49, 50
Compound Fracture of Skull, Celluloid Plates in Dressing, Dr. Wm. P. Nicholson.....	67
Constitution of Tri-State Medical Association.....	361
Diagnosis, A Word About, Dr. Stephen Harnsberger.....	91, 256
Diagnosis, Helps to Early, Dr. E. T. Dickinson.....	89, 193
Deaver, Dr. John B., Appendicitis.....	75, 316
Dickinson, Dr. E. T.....	47, 63, 89, 92, 193
Dickinson, Dr. E. T., Helps to Early Diagnosis.....	89, 92, 193
Doctors, Modern Types of, President's Address, Dr. Hubert A. Royster....	19, 103
Dorsey, Dr. R. M.....	56
Downey, Dr. J. H.....	56, 278
Downey, Dr. J. H., Fracture of Femur Treated by Special Method.....	278
Drewry, Dr. F. D.....	56
Driver, Dr. Wm. E.....	56, 72, 75, 336
Driver, Dr. Wm. E., Elected Vice-President Association.....	56
Driver, Dr. Wm. E., The Dwarfed and Deformed Mastoid.....	72, 75, 336
Duodenal Ulcer, Dr. W. D. Haggard.....	57, 133
Drainage, Surgical, Importance of, Dr. D. T. Tayloe.....	17, 332
Earle, Dr. C. B.....	45, 55, 173
Earle, Dr. C. B., Successful Case Caesarean Section.....	
Executive Council, Vacancies in Place Absentees Filled for Session.....	45
Executive Council, Session Held, Proceedings of.....	55-57

	PAGE
Executive Council, Report Adopted.....	84
Executive Council, Members of.....	5
Eclampsia, Treatment of Puerperal, Dr. Edward C. Register.....	
Educational Factor in Crusade Against Tuberculosis, Dr. F. J. Clemenger..	176
Epting, Dr. R. B.....	93, 267
Extra-Uterine Pregnancy; 12 Operations for, Dr. J. W. Long.....	282
Fellows, Honorary List of.....	357
Fellow, Honorary, Dr. Hubert A. Royster, Elected.....	56
Flippen, Dr. J. M.....	24
Fracture of Skull, Celluloid Plates in Dressing, Dr. W. P. Nicholson.....	67
Fracture of Femur, Special Method of Dressing, Dr. J. H. Downey.....	278
Gambrell, Dr. C. G.....	56
Gall-Stones, Dr. LeGrand Guerry.....	33, 126
Genito-Urinary Cases, Report of, Dr. Robt. C. Bryan.....	49
Going, Dr. Joseph G.....	56
Graham, Dr. Joseph.....	19, 41, 42, 52, 64
Graham, Dr. Joseph, Hip-Disease.....	41
Gordon, Dr. W. F.....	55
Goitre, Paper by Dr. Stuart McGuire.....	37, 199
Goitre, Discussions on.....	37-41
Guerry, Dr. LeGrand, Paper on Gall-Stones.....	33-126
Guerry, Dr. LeGrand.....	33, 39, 53, 56, 126
Hamer, Dr. H. T.....	56
Haggard, Dr. W. D.....	57, 64, 66, 133
Haggard, Dr. W. D., Paper on Duodenal Ulcer.....	57, 133
Haggard, Dr. W. D., Discussions on Duodenal Ulcer.....	64-66
Harrison, Dr. Virginus.....	15
Harnsberger, Dr. Stephen.....	91, 99, 256
Hays, Dr. Ben K.....	38, 44, 55, 101, 301
Hays, Dr. Ben K., Use and Abuse of Mineral Waters.....	301
Hayne, Dr. J. A.....	45, 56, 86
Hayne, Dr. J. A., Elected Vice-President.....	56
Healthy Individuals, Danger of Infection in Tubercular Resorts, Dr. J. Howell Way.....	101, 217
Highsmith, Dr. J. F., Surgical Treatment of Neuroses of Ovarian and Tu- bal Origin.....	308
Helps to Early Diagnosis, Dr. E. T. Dickinson.....	89, 193
Hip-Disease, Dr. Joseph Graham.....	41
Horsley, Dr. J. Shelton.....	20, 23, 41, 42, 48, 55, 63
Horsley, Dr. J. Shelton, Post-Typhoid Infection of Ribs.....	41, 207
House-to-House Surgery and Tea-Kettle Sterilization, Dr. Joseph Price....	213
Hughes, Dr. Rolfe E., Elected President.....	56
Hughes, Dr. Rolfe E., Installed President.....	102
Importance of Surgical Drainage, Dr. D. T. Tayloe.....	17, 332
Infection, Post-Typhoid of Ribs, Dr. J. Shelton Horsley.....	41, 207
Infection, Dangers of in Tubercular Health Resorts, Dr. J. Howell Way..	101, 217
Invocation, Opening, Rev. J. S. Watkins, D. D.....	9
Irvin, Dr. Jno. R.....	56
Insanity and Hospitals for the Insane, Dr. R. J. Preston.....	93
Iodine and Some of Its Uses in Surgery, Dr. J. E. Cannaday.....	157
Irvin, Dr. J. S.....	29, 49
Jervey, Dr. J. W., Remarks on Lachrymal Stricture.....	292
Johnston, Dr. A. R.....	56
Julian, Dr. Chas. A.....	18
Kirkpatrick, Dr. Wm. L.....	56
Knowlton, Dr. A. B.....	26, 35, 52, 168

Knowlton, Dr. A. B., Tumor of Caecum and Ascending Colon, Operation for.....	35, 168
Lachrymal Stricture, Remarks of Dr. J. W. Jervey on.....	292
Lander, Dr. Frank.....	15
Lawson, Dr. Jno. M.....	56
Long, Dr. Jno. W.....	17, 57, 282
Long, Dr. Jno. W., Tubal Pregnancy; 12 Successful Operations for.....	282
LaRoque, Dr. G. Paul.....	56
Leigh, Dr. Southgate.....	27, 37, 69
Leonard, Dr. O. W.....	55
MacNider, Dr. Wm. DeB.....	56
Maddox, Dr. Theodore.....	56
Mastoid, The Dwarfed and Deformed, Dr. Wm. E. Driver.....	72, 336
Mastoid, The Modern Operation, Dr. E. W. Carpenter.....	181, 182
Matthews, Dr. W. P.....	56
Members, Roll of, with Addresses.....	357
Members, Admitted at White Stone Session.....	56
Members in Arrears Three Years to be Dropped.....	56
McRae, Dr. Floyd P.....	54
McMullan, Dr. Thos. S.....	56
Meeting of 1907, Place of.....	56
Metastatic Abscess, Dr. Stephen Harnsberger.....	91, 99, 256
McGuire, Dr. Stuart.....	17, 36, 37, 41, 43, 56, 59, 67, 199
McGuire, Dr. Stuart, Goitre, Paper on.....	37, 199
McGuire, Dr. Edward.....	28, 67, 70
Modern Doctors, Types of, President's Address, Dr. Hubert A. Royster.....	19, 103
Mineral Waters, Use and Abuse of, Dr. Benj. K. Hays.....	301
Neil, Dr. G. P.....	56
Neroses of Ovarian and Tubal Origin, Surgical Treatment for, Dr. J. F. Highsmith.....	308
Nicholson, Dr. Wm. P.....	67, 71, 80, 81
Norfolk, Va., Selected as Place of Meeting in 1907.....	57, 102
Neuralgia, Trigeminal; Surgical Treatment, D. B. Merrill Ricketts.....	20, 23, 229
Officers, Roster of from Organization to Date.....	4
Officers, Elected for 1907.....	56, 84
Place of Meeting in 1907.....	57, 102
Plaster Paris Dressing for Fractured Femur, Dr. J. H. Downey.....	278
Pneumonia, Dr. John N. Upshur.....	86, 150
Potts, Dr. F. L.....	24, 55, 118
Potts, Dr. F. L., Appendicitis, Paper on.....	24, 118
Pryor, Dr. S. W.....	56
Preston, Dr. R. J.....	45, 93, 100
Pregnancy, Extra-Uterine, Report of 12 Successful Operations, Dr. J. W. Long.....	282
Price, Dr. Joseph, Sterilization in House-to-House Surgery.....	84, 213
Price, Dr. Joseph, Discusses Appendicitis.....	75
Price, Dr. Joseph.....	75, 76, 77, 78, 79, 80, 81, 84, 213
Puerperal Eclampsia, Dr. Edward C. Register, Paper on.....	93, 267
Possibilities of Appendicitis, Dr. Jno. B. Deaver.....	75, 317
Ravenel, Mr. H. E., Delivers Address of Welcome.....	10, 11, 12, 13
Reynolds, Dr. Carl V., Responds to Address of Welcome.....	13, 14, 15
Register, Dr. Edward C., Paper on Puerperal Eclampsia.....	93, 267
Rheumatism, Leaders of Discussion.....	15
Rheumatism, Paper by Dr. Jno. C. Walton.....	45, 295
Rheumatism, Discussions on.....	46, 47, 48, 49

Ribs, Post-Typhoid Infection of Surgical Treatment of, Dr. J. Shelton Horsley.....	41
Ricketts, Dr. B. Merrill.....	20, 23, 36
Ricketts, Dr. B. Merrill, Paper on Surgical Treatment Tri-Facial Neural- gia.....	20, 23, 229
Royster, Dr. Hubert A.....	15, 16, 19, 20, 51, 84, 101, 103
Royster, Dr. Hubert A., Introduced as President.....	15
Royster, Dr. Hubert A., Modern Types of Doctors, President's Address...	19, 103
Robinson, Dr. W. L.....	18
Simmons, Dr. Manning.....	57
Stengel, Dr. Alfred.....	44
Smith, Dr. A. C.....	56
Surgical Drainage, Dr. David T. Tayloe.....	17, 332
Southard, Dr. W. O.....	56
Stokes, Dr. J. E.....	57
Stomach, Surgery of, Discussion at Norfolk, in 1907.....	57
Sterilization in House-to-House Surgery, Dr. Joseph Price.....	84, 213
Taylor, Dr. Isaac M.....	45, 56
Taylor, Dr. Hugh M.....	25, 33, 61
Tayloe, Dr. David T.....	17
Tayloe, Dr. David T., Surgical Drainage, Paper on.....	17, 332
Tea-Kettle Sterilization in House-to-House Surgery, Dr. Joseph Price...	84, 213
Teague, Dr. Jesse H.....	55
Torrence, Dr. Crown.....	73, 74, 97
Tuberculosis, Dr. F. J. Clemenger, Paper on, Relative to Education of Pub- lic.....	176
Tuberculosis, Infections Dangers to Healthy Persons in Resorts, Dr. J. Howell Way.....	101, 217
Trout, Dr. Hugh H.....	56
Trice, Dr. Dabney.....	56, 83, 93, 97, 101
Tubal Pregnancy, Operation for in 12 Cases Successfully, Dr. Jno. W. Long	
Trigeminal Neuralgia, Surgical Treatment of, Dr. B. Merrill Ricketts.....	20, 23, 229
Ulcer, Duodenal, Paper by Dr. W. D. Haggard.....	57, 133
Ulcer, Duodenal, Discussions on.....	57-67
Upshur, Dr. John N.....	19, 31, 37, 43, 45, 55, 79, 84, 87, 88, 89, 90, 150
Upshur, Dr. John N., Paper on Pneumonia.....	86, 89, 90, 150
Wallace, Dr. A. McG.....	56
Way, Dr. J. Howell.....	19, 45, 56, 101, 217
Way, Dr. J. Howell, Paper on Infection—Dangers to Healthy in Resorts.....	101, 217
Way, Dr. J. Howell, Elected Secretary.....	56, 84
Walton, Dr. Jno. C.....	26, 45, 49
Walton, Dr. John C., Rheumatism, Paper on.....	45, 295
Whisnaut, Dr. A. M.....	56
Williams, Dr. Ennion G.....	56
Williams, Dr. J. F.....	56
Waters, Mineral, Use and Abuse of, Dr. Benj. K. Hays.....	301
Wilson, Dr. G. DeFoix.....	9, 10, 13, 55
White Stone Lithia Springs Co., Thanked for Courtesies.....	55
Zimmerman, Dr. W. P.....	54

